ACCS

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MODERN TRANSPORT

"THE TIMES" OF THE TRANSPORT WORLD

EXHAUSTERS BY THE THOUSAND

See Page 11

VOL. LXXXIII No. 2142 [Registered at the G.P.O. as a newspaper] LONDON, JUNE 4, 1960 PRICE ONE SHILLING

CURRENT TOPICS

Events for Locomotive Engineers

A USEFULLY grouped series of events—the excellently organised visit of the Institution of Locomotive Engineers to Germany, the London meeting of the sixth conference on standardisation of mechanical equipment on oversea railways, and the joint symposium of the Institution of Locomotive Engineers and the Aluminium Development Association on the use of aluminium in railway rolling stock—has made the past week or so of outstanding importance to those concerned with railway motive power and rolling stock design and operation. The conference of oversea railways was attended by general managers, chief mechanical engineers and works superintendents from 10 Commonwealth railways, together with representatives of locomotive and rolling stock builders, the British Standards Institution and, of course, the Crown Agents. It was opened by the Senior Crown Agent, Sir Stephen Luke; the chairman was Sir Reginald W. Taylor, engineer-in-chief, and the vice-chairman Mr. D. C. Brown, chief mechanical engineer. Besides business sessions on Monday to Thursday and the devotion of Friday to the Aluminium Symposium, the delegates were enabled to visit the works of J. Stone and Co. (Deptford, Limited, and (this week) the Vulcan Foundry at Newton-le-Willows and Swindon Works, Western Region, where construction of diesel-hydraulic locomotives was examined. A talk on the modernisation of British Railways was given by Mr. E. S. Cox, assistant chief mechanical engineer, B.R. Central Staff; an evening reception was given by the Locomotive and Allied Manufacturers Association in the Trevithick Room of Locomotive House on a delightful evening when the flower-decked balcony was seen at its best.

A New Computer Development

IN November, 1956, International Computers and Tabulators, Limited, and the General Electric Co., Limited, of England, formed Computer Developments, Limited, as a jointly owned design and co-ordinating group. The object of this arrangement was to bring into the computer field the extensive technical and engineering resources of the two parent companies. I.C.T. is, of course, well known as the largest manufacturer of data processing equipment in this country and the company's appreciation of the requirements for a new data processing system is based on experience of computer usage throughout the world. General Electric, on the other hand, has the full backing of its Wembley research laboratories and contributed the combined experience of its telecommunications, electronic and component divisions. Computer Developments, Limited, with elements drawn from both I.C.T. and G.E.C. staff, has made successful use of this unique combination of experience in its studies and design work, which has led to the introduction of this advanced data processing system at an economic cost. In doing this, it was able to take full advantage of the latest electronic and electro-mechanical developments and to satisfy the most stringent demands in application. Electronic circuits were designed in parallel with the latest I.C.T. developments in input, output and storage equipment. Production prototypes are being used for the exhaustive testing required to provide the high standard of performance and reliability maintained in all I.C.T. products for the I.C.T. 1301 data processing system, to which detailed reference is made elsewhere in this issue.

Achievements in Electronics

FIGURES given in the Electronic Engineering Association annual review underline the growing importance of the British electronics industry to the economy and its rapid penetration into every phase of human endeavour. In a foreword to the review, Mr. L. T. Hinton, chairman of the association, reveals that the industry is now growing at the rate of £30 million a year and that gross output in 1959 approached £475 million. The industry employed some 350,000 people in that year and is currently spending about 10 per cent of its annual turnover in research—the highest proportion of any industry in the country except aviation. Highlights of the review include many outstanding export orders for defence equipment and contracts from all over the world for communications equipment. Sea-going ships are being fitted with British radar at the astonishing rate of a least eight ships a working day. In 12 months, one firm alone has received orders for more than 1,300 ship radars. Even Russia is now buying British aviation electronic equipment. Aeroflot, the Russian civil airline, has ordered a large amount of automatic navigation equipment and Russia has also purchased £100,000 worth of British instrument landing equipment, similar to that used in the Blind Landing Experimental Unit system of automatic landing. Switzerland, Belgium, Holland, New Zealand and Ghana are among many countries that have ordered ground radar equipment, while large television and broadcasting contracts have come from many others. Great activity in the field of electronic computers has included the sale of at least one computer to the United States.

The Industry Shows its Wares

CONSOLIDATING its claim to be the world's greatest show of its kind, the third Instruments, Electronics and Automation Exhibition, held at Olympia last week, occupied twice the space of earlier shows with nearly 500 British and foreign exhibitors and underlined the diversity of application of electronic products. A variety of computers indicated the widening scope of these devices; many of these have been brought down to a level suitable for general use in commerce and industry, one example shown giving clear numerical information—eliminating the separate decoding sequence, while another of desk size operating from a normal 230-volt supply solves 27 simultaneous equations in six minutes. Automatic control, measurement and supervisory equipment was shown applied to a wider than ever assortment of machine-tool and production-line operations and processes. New proximity detectors indicating movements or dimensional changes of tenths of thousandths of an inch and a thickness tester measuring plating down to three-millionths of an inch are two examples of fine-measurement devices, while the photocell and electronic relay in combination were seen everywhere to be easing the task of man in industry. Safer electric hand tools are likely to result from application of a device that automatically breaks the circuit when a fault develops in the tool and more efficient hydraulic mechanisms are foreshadowed by miniature high-speed pumps and motors operating at speeds of 40,000 r.p.m. and pressures of 2,000 p.s.i. Remote automatic control and continuous supervision now extends to gas-works and lighthouses; other applications of the principles involved have produced a miniature recorder that continuously monitors an aircraft's flight and is ejected in the event of a crash to provide evidence of failure of any of its principal components. More mundane perhaps but of interest to transport operators are the new transistorised inverters to provide efficient fluorescent lighting from battery voltages and a ship control simulator for reducing the time and cost of training seamen.

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The Fishguard—Waterford Service

MOST of the business of the Transport Users' Consultative Committees is concerned with rail closure proposals. An exception last year was the case of the Fishguard — Waterford steamship service, which came before the Consultative Committee for Wales and Monmouthshire. The proposal was for the withdrawal of passenger facilities from this route by conversion of *Great Western* into a cargo vessel. Interest attaches to this case as it had been quoted by Mr. J. C. Jennings, Conservative member for Burton, as one which impelled him recently in the House of Commons to describe the whole procedure of the consultative committees as "a complete farce so far as consumer protection is concerned." The facts, as related by the Committee, are that in spite of the circulation by the B.T.C. of details to all likely to be interested, none notified any objection. Moreover, nationwide publicity of its intention, both in the Press and by poster, produced only ten letters of protest. "The lack of general public reaction, however, did not absolve us from our duty of going into the case with thoroughness," states the report. "After careful examination we were satisfied that the estimated net saving of £10,000 per annum was largely correct and that a further substantial economy would be achieved from the difference between the renewal charges for a cargo vessel and those for a passenger ship." The Committee agreed that the Fishguard—Rosslare service could absorb the passenger requirements of both routes at normal times and was satisfied that the Commission would augment the Rosslare service in both directions to meet occasional peak demands. Full consideration left the Committee in no doubt that the Waterford service was "seriously unremunerative and superfluous to requirements."

Signalling in Fog

REPORTING on an accident at East Ham on November 12 last Brigadier C. A. Langley, Chief Inspecting Officer of Railways, refers to recommendations he had made over 12 months earlier which, had they been applied, might have avoided it. In fog the 12.25 p.m. Fenchurch Street—Shoeburyness train ran past the Upton Park starting signal at danger and then past the East Ham outer home, which was still "off" for the noon Fenchurch Street—Shoeburyness train standing in East Ham station. The second train hit the rear of the first at about 15 m.p.h. and 12 passengers were injured. The line is equipped with the Hudd automatic warning system. The report finds that the driver of the 12.25 p.m. train failed to see the Upton Park starter at danger because he was not keeping a proper look-out and he must be held solely responsible for the accident. The warning system was a most valuable safeguard but it did not relieve drivers from their responsibility for the observance of signals. Brigadier Langley says that after a similar collision at Dagenham on January 30, 1958, he recommended that during fog or falling snow a signalman should not be allowed to send a train forward to a stop signal to await acceptance ahead unless the signal was a colour-light or, if a semaphore, it was fitted with co-acting detonators, the explosion of which was indicated in the box. The complicated nature of the problem did not lend itself to an immediate solution. "Consequently it was not until July 8, 1959, that the regional general managers were instructed by the B.T.C. to go ahead with revision of the instructions in those signalboxes where the prohibition could suitably be applied. Upton Park was one of those boxes, but the actual instruction did not reach the signalman until the day after the accident."

Bigger, Faster Buses Sought

THE rising tide of private personal transport was producing a serious congestion problem in our towns and cities, calling urgently for further measures of control; legislation now before Parliament aimed not only at further control, but at putting teeth into the powers to enforce it, Mr. Raymond W. Birch, chairman, told the annual general meeting of the Yorkshire Traction Co., Limited. It might well be that public transport would thus come into its own again, as admittedly the most economical and convenient, and indeed quickest way of transporting large numbers of persons within and to and from the built-up areas, which, failing some rescue action, could soon be better described as the "jammed-up areas." If public passenger road transport were to play its proper part, however, its vehicles must be freed from unreasonable restrictions, such as the 30 m.p.h. speed limit on the open road where there was no such limit on the private car, and the cramping limit of 30 ft. overall length for single-deckers—6 ft. less than that allowed in every Continental country, except Portugal, where the limit was 33 ft. It was over 18 months since the former Minister of Transport announced his intention to permit public service vehicles to travel at 40 m.p.h. outside built-up areas, but for some mysterious reason the proposal seemed to have been shelved, despite the high driving standards of p.s.v. men. In 1959, 441 Traction drivers won awards for a year of complete freedom from blameworthy accidents. The whole bus industry had asked the Minister of Transport to adopt the European standards of 11 metres (36 ft.) length and 2.5 metres (8 ft. 2½ in.) width for single-deck vehicles, which would be of particular help to that company because of the many low bridges in the area. The larger number of passengers per vehicle would enable further operating economies.

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JUST 167,557
OVER THE ODDS

MARCH '57
"we confidently expect our Leylands to reach 400,000 miles"
MARCH '60
"top mileage noted to date is 567,557"

In March 1957, Mr. W. C. Wilson, M.INST.T., M.I.R.T.E., General Manager of Stockton Corporation Transport Department, which operates Leyland Titans, said: "there seems no reason to carry out major overhauls at fixed mileages . . . we confidently expect our engines to reach 400,000 miles".
Events proved Mr. Wilson to have been overcautious. Today, with only limited maintenance, more than one of his engines have passed the half-million mark. The top mileage is 567,557, and the only major attention on this engine was the fitting of new rings and a new set of pistons and liners at 347,268 miles. And in Mr. Wilson's own words: "the m.p.g. is still surprisingly good".
Such mileage for a passenger vehicle operating arduous stop-start city services . . . plus excellent fuel consumption figures, all-round reliability and keenly competitive price prove that the overall cost of the Leyland Titan is lower than any other bus of similar capacity.
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MODERN TRANSPORT

Published Every Friday
RUSSELL COURT, 3-16 WOBURN PLACE, LONDON, W.C.1
Telephone Number: TERminus 0303 (3 lines)
Telegraphic Address: Transpubco, Westcent, London

ANNUAL SUBSCRIPTIONS
BRITISH ISLES, 47/6; CANADA, 45/-;
ELSEWHERE ABROAD, 47/6
payable in advance and postage free

The Editor is prepared to consider contributions offered for publication in MODERN TRANSPORT, but intending contributors should first study the length and style of articles appearing in the paper and satisfy themselves that the topic with which they propose to deal is relevant to editorial requirements.

European Transport Ministers' Conference

EUROPEAN economic expansion in 1959 was greater than expected; in the countries embraced by the United Nations Economic Commission for Europe (O.E.E.C.) there were increases of 4 per cent in the gross product and 5 to 6 per cent in industrial production, with a record expansion in the iron and steel industry but a continuing decline in coal output; the general improvement was not reflected in the volume of goods carried. In remarking upon these features in its sixth annual report the European Conference of Ministers of Transport (E.C.M.T.), of which the United Kingdom is a member, states that the decline in rail traffic of 1958 continued into the first half of 1959 but was reversed in the autumn. By that time the cumulative figure for freight had practically reached the figure for the corresponding period of 1958, but the year's total was still below those for 1956 and 1957. There was no appreciable reversal of the downward trend in passenger traffic. The report records a heavy increase in international road transport—in several countries by between 20 and 50 per cent—an advance which reflects a steady growth in the number of road vehicles, from 20 million in 1957 to an anticipated 29 million by the end of 1960. Traffic on the inland waterways recovered slightly, although the summer drought caused low water levels on the Rhine and Danube which had an unfortunate effect on traffic because of the inability to load many barges to more than half their capacity. Traffic on the Rhine was also adversely affected by the opening, early in 1959, of the Wilhelmshaven—Cologne pipeline which was the means of diverting some two million tons of mineral oil.

The Outlook

ON the whole, prospects for 1960 are considered to be favourable for freight transport, which should reflect the anticipated increase in economic activity. However, two countries—Germany and the United Kingdom—express a more cautious view. The former, owing to anticipated changes in the "energy picture," does not expect any increase in rail traffic; the latter, whilst foreseeing further progress in road transport, is "more reserved for the railways," which are expected to make up in iron and steel products for the continuing decline in coal traffic. On the long-term outlook the report emphasises the radical changes taking place in the policies of governments regarding sources of power and its distribution. This problem, which is vital for the future of transport and affects capital investment, is to be the subject of a study on transport requirements up to 1970; similarly the whole subject of pipeline transport is under investigation. Considerable work on railway electrification has been actively continued. Some 750 route miles were electrified during the year, and by 1963 73 per cent of the European main-line network will have been completed; the rate of electrification is expected to slacken in the near future as the most heavily trafficked routes are completed. Progress on diesel traction is also rapid: locomotives of over 350 h.p. rose from 166 at the end of 1950 to 2,614 at the end of 1958 and were expected to reach 3,500 12 months later, a development which, the report says, emphasises the importance of standardisation. In 1958 43 per cent of total train-miles were run by steam, 36 per cent by electric and 21 per cent by diesel traction; corresponding figures in gross ton-miles were: 51, 42 and 7 per cent. At the end of 1958 25 per cent of the freight wagons were of "standard" or "unified" types. Orders were outstanding for 29,114 wagons, 25 per cent less than in the previous year, and the greatest reduction was in open wagons because of the decline in bulk traffic.

Road Development

THE Council of Ministers of Transport estimated in 1957 that, in order to adapt the road network to constantly increasing traffic, highway investment should be at least doubled in the coming years. The results are regarded as quite encouraging, for six of the E.C.M.T. countries more than trebled their road investment in 1958 as compared with the 1952-56 average, and five others more than doubled it; 54.6 per cent of the total road network has now been improved. Development works on the main European highways are co-ordinated in the E.C.M.T. by 16 "restricted groups." One of these, for instance, is responsible for following the execution of the new direct "crow's flight" link between Germany and Denmark, which is progressing favourably, and two others are concerned with road work through the Eastern Alps. Progress is also recorded in the building of the new road tunnels under Mont Blanc (7¼ miles) and the Great St. Bernard (3¾ miles), begun in 1958. As regards inland waterways, expansion of the fleets—in excess of requirements in 1957 and 1958—subsided in 1959, but the problem of co-ordinating the building of new vessels with the writing-off of old ones is considered urgent. The possible introduction of "pusher" techniques on inland waterways is still being studied in both technical and economic aspects; the principle may have "great influence on operating conditions."

Access to Ports

OF especial interest is the report's review of major development works designed to improve communications between the North Sea and Mediterranean ports and their respective hinterlands. As regards the North Sea ports, the report states that by 1963 German railway electrification is to be extended northwards from Bavaria to Hamburg and by 1961 the north-south motorway connecting that port with Basel via Göttingen and Frankfurt will have been completed. The Ruhr has now been connected by pipeline with Wilhelmshaven; another pipeline from the Ruhr to Rotterdam is to be finished this year. By 1962 motorways will link Rotterdam and Antwerp with the Ruhr, and the River Meuse will be improved to allow vessels of 1,350 tons to reach the French frontier. Elimination of the Lanaye bottleneck will enable 1,350-ton vessels to pass between the Liège basin and the Juliana Canal, and work is proceeding on the canalisation of the Main, Neckar and Moselle rivers. It is planned to improve access to Dunkirk by 1963 by extending the French northern and eastern railway electrification, by providing a canal for 1,350-ton vessels to Valenciennes, and by building a motorway from Lille. As to the Mediterranean, by 1963 Marseilles will have the benefit of extension thereto of the Paris—Lyons—Avignon railway electrification, of a new motorway from Lyons, and of a pipeline from Strasbourg. By the end of 1960 Genoa will be connected by motorway to Milan and the Swiss frontier at Chiasso, and by pipeline with Colombey in Valais. Improvements being made in the approaches to the Italian Adriatic ports include modernisation of the railway connecting Trieste with the Austrian frontier and electrification of the Venice—Udine line by 1963. A motorway will also link Venice and Trieste with the Austrian frontier at Tarvisio. These various works certainly bear testimony to the anxiety of governments that lines of communication should keep pace with technical progress and trade expansion.

NEWS SUMMARY

A BRITISH coach—a Plaxton-bodied A.E.C. Reliance in the service of Sheffield United Tours, Limited—won the highest prize, Grand Prix du Président de la République, in the Nice Coach Rally, Rallie International Europe—Côte d'Azur, out of a very large field of Continental vehicles and bodywork. See page 12.

B.O.A.C. has been able to introduce its Rolls-Royce engined Boeing 707s to service earlier than was expected. See page 7.

Two more de Havilland Comet 4B air liners have been ordered by British European Airways. See page 14.

Through carriages have commenced working between the Hook of Holland and Paris and Moscow. See page 13.

The International Conference on Safety of Life at Sea is meeting in London for three weeks.

Mr. Stephen Ferry, traffic manager, Trent Motor Traction Co., Limited, retires on September 30 after 38 years as traffic manager of that bus undertaking.

A £22 million contract for a new bridge over the Tagus at Lisbon has been awarded provisionally to an American-Portuguese-French consortium led by the United States Steel Export Company.

The Metropolitan-Cammell Carriage and Wagon Co., Limited, has completed the first of 35 electric locomotives (sub-contracted from the Associated Electrical Industries group which is building 135 in all) for the South African Railways—see page 13.

ALUMINIUM IN RAILWAY ROLLING STOCK

Symposium Organised by I.L.E. and A.D.A.

DISCUSSION OF 13 PAPERS

A SYMPOSIUM of 13 papers on the use of aluminium in railway rolling stock, organised jointly by the Institution of Mechanical Engineers and the Aluminium Development Association, was held at the Institution of Mechanical Engineers on May 27. Mr. R. A. Smeddle, M.I.Mech.E., president of the Institution of Locomotive Engineers, opened proceedings and also acted as chairman of the first session, introducing the authors of the five papers presented. The subject of the session was design and construction. The afternoon session comprised eight papers on operation and service experience. The chairman was Mr. W. Brining, F.C.A., president of the Aluminium Development Association, and three papers were introduced briefly by their authors. Mr. D. C. Brown, C.B.E., chief mechanical engineer of the Crown Agents, acting as rapporteur, succinctly introduced the five papers describing experience in Canada, France, East Africa, Germany and the U.S.A.

At a luncheon given by the Aluminium Development Association to participants in the symposium, that body's president, Mr. W. Brining, expressed pleasure that the Institution of Locomotive Engineers had accepted the suggestion of jointly organising this event; the Association was grateful to the president, members of council, the liaison committee and staff concerned. The Association, a voluntary organisation undertaking research and technical development work on problems affecting the use of aluminium, had now been established for 15 years and was responsible for supplementing the vast research programmes undertaken by the companies comprising the aluminium industry.

Today's concern with the use of aluminium on the railways, he said, was by no means confined to this country. It was a source of particular gratification to the organising bodies that the guests included a number of chief mechanical engineers and of other representatives from oversea. At least 12 countries were represented, including France, Germany, Holland, Hungary, Switzerland, U.S.A., Canada, East Africa, Ghana, Nigeria, Sierra Leone and the Sudan. One of the objects of the day's proceedings was to stimulate free expression of all points of view and the exchange of technical information. He then introduced the guest of honour.

British Railways in the Van

Dr. Reginald Bennett, M.P., chairman of the Parliamentary and Scientific Committee, said that the application of the results of research, and the cross-fertilisation of ideas, was a topic particularly close to that committee. British Railways was in no way behind the rest of the world in applying aluminium to rolling stock — indeed more aluminium vehicles were running on railways in Britain than in any other country. He referred to aluminium panelling of certain British Railway coaches which had a satisfactory service life of 45 years, and to the very large numbers of all-aluminium and aluminium exterior panelled coaches now being built for London Transport after nearly 10 years' service experience with 90 all-aluminium coaches on the District Line. Again, British Railways had a large stock of aluminium diesel railcars in service, apart from interior fittings and slam doors, made as aluminium castings on many ordinary main-line and suburban coaches.

It was with an eye on still more efficient designs that researches being reported today had been undertaken, and it seemed inevitable, said Dr. Bennett, that the use of aluminium must spread to all other types of rolling stock used by British Railways. He also thought it was particularly pleasing to have so many visitors from oversea because railway vehicles had always been an important export of the United Kingdom. "As long as our home railways use aluminium, so will the railway designers and builders be able to offer more efficient and up-to-date rolling stock to the export market. The collaboration of some of the vehicle builders in joint research with the British Transport Commission and the A.D.A. is therefore especially valuable and an extension of it can be commended."

Progress in Design

A paper supplied to participants in the proceedings was that by Dr. E. G. West, technical director, the Aluminium Development Association, on the properties of the metal. The world output of aluminium ingot has grown from 7,000 tons in 1900 to an estimated 4½ million tons this year and the price has fallen comparatively to other metals and raw materials. In dealing with general aspects of design in aluminium alloy, Mr. J. F. Thring, A.M.I.Mech.E., pointed to the factors making for progress in design—improvements in and a greater knowledge of techniques for manipulating aluminium alloys; improvements in welding techniques; and a better understanding of the behaviour of coach structures under service loads. Included in the paper was a design for a coach with fluted or ribbed exterior panels, with continuity of structure permitting further weight saving.

In "Stress Determination in Coach Frames by Electronic Computation," Professor D. N. de G. Allen and D. W. Windle, of the University of Sheffield, described the application of numerical methods to investigate the distribution of stress in railway coach frames by using an idealised coach and specially devised programmes for solving the very large number of sets of simultaneous equations within the scope of present-day computers. Sir Alfred Pugsley, O.B.E., Professor of Civil Engineering, University of Bristol, gave a similarly erudite paper ("The Crumpling of Tubular Structures Under Impact Conditions") derived from some experiments directed to the improvement of the "crash-worthiness" of railway and road vehicles conducted for the Aluminium Development Association and the British Transport Commission.

New features adopted in designing light alloy coaches ordered by the London Transport Executive were described in the paper by Mr. S. White, technical director, Cravens, Limited. The 464 coaches for the Metropolitan Line will have simplified construction intended to make the cost more competitive with other materials. One feature is the elimination of exterior panelling from waist rail to top of roof coving, by arranging the outer faces of the structural members to form the exterior face of the carriage. A saving of 1,500 panel rivets results in each car, with corresponding labour reductions. The motor cars seat 54 and trailers 58; both have an overall length of 53 ft. 0¼ in. and a width of 9 ft. 8 in. Each axle of the motor car is motored; rubber suspension and air doors are employed. The main pillar extrusions make window mouldings for retaining glass in position unnecessary; timber fillets for accepting wood screws to secure the inside finishing panels are not required. The necessity for an exterior panel is eliminated and the side faces of the extrusion can form the interior finish of the window recess. The cantrail extrusion runs from end to end of the car and forms one of the main structural members. The carlines connect to the top flange of the extrusion and can be rolled to the large radius of the roof sweep without expensive tooling being required. To keep cleats and gussets to a minimum and to provide a structure with the least possible number of framing joints, light alloy castings have been introduced for corner pillar, doorway pillar and waistrail connections.

The main pillars are made as wide as possible, consistent with the requirement for large windows, and the lower cantrail extends to the top of the window and laps over the pillars. This provides a large area for riveting the vertical members to the top horizontal member of the bodyside girder; sections of maximum moment of inertia are used in the space available. Although the framing of the body is entirely of light alloy, welded steel fabrications are used for the headstock and bolster assemblies. The restricted depth available between floor level and bogie does not allow any scope for an economical light alloy design of underframe bolster, and the attachments required on the headstock for buffing and drawgear, end sills and anti-collision posts also make a light alloy design more expensive than the saving in weight can justify.

Use of Models

In addition to the theoretical stress analysis on the structure calculated with the aid of the electronic computer arrangements were made with Northern Aluminium Company for a one-third scale model to be tested by Aluminium Laboratories, Limited, to check that the design would be adequate for the loading and service required, especially in view of the additional window space. After checking with the aircraft industry that useful results could be obtained from one-third scale models special dies were made to obtain the scale model extrusions required.

Descriptions were also given by Mr. White of aluminium panelling on steel framing in prototype tube cars being produced by Cravens, Limited, the obtaining of external finishes suitable for passage of automatic washing machines and the additional payload obtained by saving tare weight by use of light alloys in freight vehicles. The containers built for British Railways by Tube Investments, Limited, in which Araldite resin adhesive is used in lieu of argon arc welding, were also described, together with applications of light alloy to locomotive superstructures and to non-structural features of vehicles, such as parcel racks and partitions.

London Experience

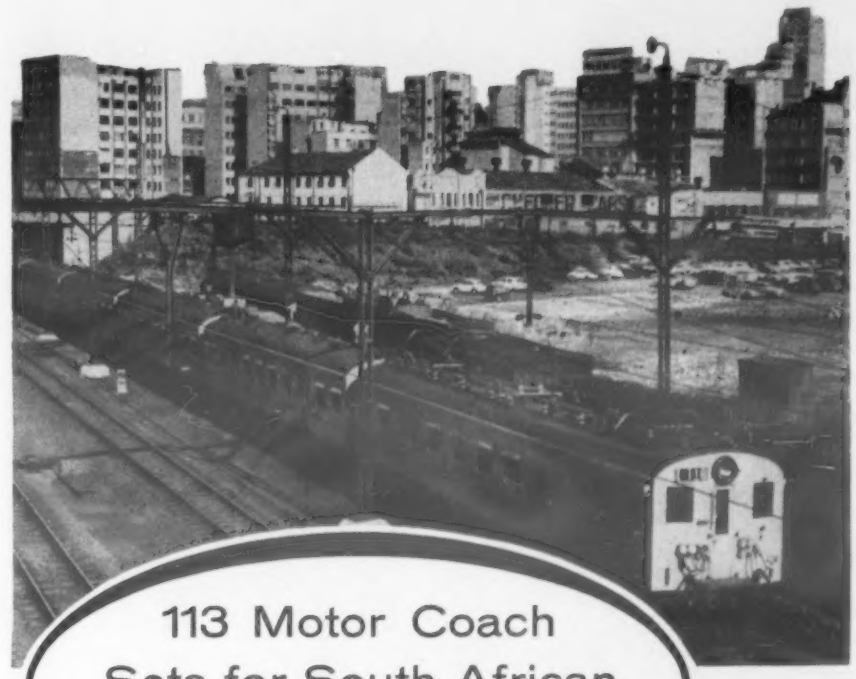
The afternoon session was opened with a paper on experience with underground stock by Mr. A. W. Manser, B.Sc., M.I.Mech.E., chief mechanical engineer (railways), London Transport Executive, who described the experience over eight years with light alloy cars on the District Line, emphasising that it was experience with particular cars on a particular service. With the service in question, the average interstation distance is 0.63 mile, and it was expected that the saving in energy consumption on this service would be of the order of 10 per cent. Subsequent to the construction of the stock, comparative tests were carried out under controlled conditions to determine the saving that would, in fact, result. This was not as straightforward a matter as might at first be imagined, because the very reduction in weight itself introduced variables.

With a lower total weight, if the adhesion limit it not already being worked to, then a higher rate of acceleration could be achieved with the same current setting of the accelerating relays, thus giving opportunity for a greater amount of coasting or for achieving a shorter run time for the same journey. In the event, it was decided to reduce the accelerating relay settings so as to maintain the acceleration at roundly the same value and achieve the same station-to-station run time. With this arrangement an energy consumption roundly 12½ per cent less than that achieved with the steel train was obtained; this compares with the 16 per cent reduction in weight that had been achieved by adopting the light alloy body construction. Consequential benefits for the electrical distribution system are thus available.

Cleaning

The rolling stock on the District Line includes a fair proportion of cars of earlier date, using cast-iron brake blocks on the motored wheels. The presence of such stock is known adversely to influence the exterior cleaning problem, and the unpainted light alloy stock has, therefore, had a fairly exacting trial as to its ability to operate without incurring cleaning costs above average. The general impression gained with these cars is that they do not get dirty any more quickly than painted cars and are rather easier to clean when they do get dirty. With daily water washing, the period between hand cleaning can be of the order of 10 weeks in winter months and 16 weeks in the summer. As to any evidence of corrosion, an extremely close inspection carried out at intervals by senior design personnel has failed to reveal any signs of trouble in this direction.

(To be continued)



A new AEI contract covers the electrical equipment for 113 motor coaches, 60 driving trailers and 276 trailer coaches for South African Railways. A total of 350 motor coach equipments have now been ordered from AEI by S.A.R., and no fewer than 345 electric locomotives have been ordered from AEI by the same customer

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A MEMBER OF THE TURNER & NEWALL ORGANISATION 9/30

LORRY—BUS—COACH

Concern About Minibuses

OPERATORS in the East Midlands area are considering asking the Minister of Transport to investigate what are suspected to be illegal miniature bus services which are carrying fare-paying passengers in the area. The request is to be made through the Public Transport Association and the Passenger Vehicle Operators Association. Mr. W. Leese, general manager of the Trent Motor Traction Co., Limited, comments: "There are a lot of these 10- or 12-seater minibuses operating in our area and if they are not licensed to carry passengers they are breaking the law if they collect fares. We are certainly being affected—it is a common opinion that only the small rural companies are feeling the pinch, but that is pure fallacy. These minibus services—run in the main by large firms to carry their workers—are taking away a lot of our passengers. We have been concerned about the problem for some considerable time and as members of the Public Transport Association we have asked that the matter should go before the Minister of Transport. We received a lot of support from other bus companies and the associations are, in fact, going to ask the Minister to take action." For Barton Transport, Limited, the secretary, Mr. F. Bloomfield, said there was no doubt that minibuses were very active in the area although he had no specific evidence of loss of trade. Last week, it was stated that the East Midlands Area Traffic Commissioners would make inquiries about the use of the minibuses in the district.

Double-Deckers to Blackpool

EIGHTEEN attractive hostesses, nearly half of them from the Home Counties, have been engaged to serve light refreshments to passengers on board the Gay Hostess 50-seat double-deck coach services operated by W. C. Standerwick, Limited, the Ribble subsidiary, between London, Lancashire and the Lake District, also the night service to Blackpool. The service started on Tuesday this week. The hostesses work change-over duties so that they will always return to their own homes after each shift.

Western Welsh—J. James Exchange

A TOWN tour introduced at Neath last year by the Western Welsh Omnibus Co., Limited, has carried 8,000 passengers to date, the South Wales Area Traffic Commissioners were told. Mr. F. H. Pengelly, traffic manager of Western Welsh, said that tours and excursions from Neath last year had increased by 102.6 per cent and the company was hoping for similar results from a new town tour of Port Talbot and district starting from Neath. The Commissioners granted Western Welsh an application to introduce additional picking-up points at Caerwern, Bryncoch and Rhos; to increase the vehicle allowance from 12 to 16; to vary the routes of some tours and to introduce 14 additional tours. The Port Talbot tour will cover places of interest such as Margam Abbey. An application for an exchange of services between Western Welsh and J. James and Sons, Limited, Ammanford (also a B.E.T. company), was granted. Western Welsh is to take over the operation of services between Ammanford and Aberystwyth while J. James will take over certain journeys previously operated by Western Welsh between Ammanford and Llanelly.

Buoyant Coventry Outcome

COVENTRY Corporation Transport had a trading surplus of £152,267 during the year ended March 31, 1960. This sum was reduced by debt charges and renewals fund contribution to a net figure of £56,218 available for appropriation. Passengers carried during the year totalled 94,552,167—an increase of 3,352,088. But national wage awards in the municipal passenger transport industry will add £95,000 to the annual wages bill, and the £59,196 in the reserve fund will be swallowed up in the current first half-year's working. Consideration will probably be given to the cheap morning fares, available up to 8.45 a.m. Complete abolition of these is possible, rather than an all-round increase which would affect all members of the travelling public.

One of the new series IV Morris-Commercial 2-tonners with the angle-entry cab; right, Albion Clydesdale of Ready Mixed Concrete, Limited, making a 3 a.m. Sunday delivery to a bridge renewal contract on the London Underground near Farringdon Station

Car Delivery Turned Down

AN application by an Aberdeen operator for a second vehicle to transport new cars and tractors north from English factories was refused on May 25. Mr. F. T. Farrant, manager and secretary of Aberdeen Steam Navigation Co., Limited, said 25 to 30 cars were taken north every week—or about 1,500 a year. They had been carrying cars ever since cars were made, and had never been asked to carry more cars than they could handle. British Railways also gave evidence in opposition.

Junior Passenger Complains

WRITING to a local newspaper, a sixth-form Chesterfield schoolgirl says she wants to start a campaign on behalf of Britain's schoolchildren to give them better service on the nation's buses. She complains of the "downright rudeness and the distasteful and aggressive manner" of conductors on her 3d. journey to school. "How can people expect the respect of children when they themselves are offensive?" she says. "Conductors seem to think because you are in school uniform you are not entitled to courtesy. They treat us terribly, and I don't like it."

Odd, This

RIDING on a London bus in the seat behind the driver, an oldish man, a correspondent was very surprised when, having got into top gear on an uninterrupted run between two widely spaced stops, he hoisted himself out of his seat, twisted his left leg beneath him and sat down on it. On approaching the next stop he extricated his leg ready to select starting gear. The only available explanation for this comical contortion, which was repeated two or three times, seems to be that the driver was getting into training for the Route-master fully automatic "one-leg" bus, of which 300 are already in service.

Basingstoke Bus Terminal

BASINGSTOKE is to have a new bus terminal, to be built by Wilts and Dorset Motor Services, Limited, on part of the Wharf site. Besides administrative offices, maintenance workshops and a staff canteen, the new building will contain a passenger terminal for all services, with a waiting room and buffet. The depot will replace existing offices in Wote Street, the terminal and bus stop in Basing Road and workshops in Victoria Street. It will thus eliminate empty running.

Assisted-Travel Appeal

THE Minister of Transport has decided against the Potteries Motor Traction Co., Limited, and in favour of Greatrex Motor Coaches, Limited, on an appeal concerning a road service licence for an express service between Newcastle-under-Lyne and Stafford (16 M.U., R.A.F.) for the carriage of Air Ministry employees, granted to Greatrex. He says that the existing P.M.T. service fails to meet the need which would be met by the Greatrex service in one important respect: the fare arrangements applicable to the P.M.T. service were not those desired for the new service. It is true that the passengers in question could have travelled on the P.M.T. service: but the Air Ministry would have been put to extra expense, and in the Minister's view it was reasonable for the Commissioners to attach considerable weight to this factor. He regards the fact that the expense would fall on public funds, rather than on a private employer, as of no particular significance in this context. Moreover, the assisted travel arrangements concerned in this case are such that the respective services will operate without actual competition on the road. P.M.T. services to No. 16 M.U. are restricted to the carriage of Air Ministry employees and no claim was made that they supported, directly or indirectly, services for the general public. Accordingly, the denial of traffic to these services appears likely to have little or no effect on the travelling public generally or on the fulfilment of the needs of the area as a whole in relation to traffic.

Last of Grimsby—Cleethorpes Trolleybuses

TROLLEYBUSES cease operation in the Grimsby—Cleethorpes area today, June 4, whereafter the last route, between Grimsby (Old Market) and Cleethorpes Bathing Pool, is being replaced by buses. There will be more through bus journeys to avoid changes for passengers. The last trolleybuses are up for sale.

L.U.T. in Warrington Area

SOME time this year, Lancashire United Transport, Limited, intends to commission a new garage at Winwick to house the buses engaged on services in the Warrington area. This should enable L.U.T. to reduce the very large unprofitable mileage that is necessary to provide such services from present garages.

500,000th Load for Vehicle Ferry

ON Friday this week, a nine-ton mobile exhibition en route from Luton to Poland was expected to become the 500,000th load carried by the drive-on—drive-off Tilbury—Antwerp ferry. The exhibition vehicle, 32 ft. long, carries the latest pneumatic and electronic instruments for industrial purposes, manufactured by George Kent, Limited, a regular user of the ferry.

Possibilities in North Devon

THE possibilities of co-ordination between British Railways freight cartage and British Road Services are being examined in North Devon. A suitable opportunity arises with the closing to passenger traffic from June 11 of Barnstaple Victoria Road Station at the end of the Western Region branch from Taunton. There is at present no B.R.S. depot in Barnstaple and the suitability of Victoria Road passenger terminal for adaptation is to be explored. Day-to-day liaison between the two undertakings for delivery of traffic is proposed.

Bus and Coach Developments

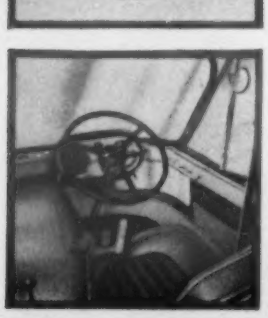
S. H. Bateman, Limited, Shaw, seeks the excursions and tours therefrom and from Newhey of A. B. and H. Johnson.

J. W. Fieldsend, Limited, Salford, applies for excursions and tours from Broughton of T. Mason (Hauliers), Limited.

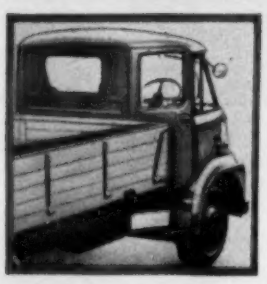
East Kent Road Car Co., Limited, proposes to extend its summer service between Rye and Ferryfield Airport via Camber to commence at Hastings and terminate at New Romney.

From June 4 Glasgow Corporation Transport will replace tram route 3 by bus route 59, Mosspark—Kelvinside (MODERN TRANSPORT, May 14); tram route 10, Kelvinside—London Road (Braidfauld) will be withdrawn and 23 diverted in the city via Hope Street and Cowcaddens Street. There will no longer be any trams in Renfield Street.

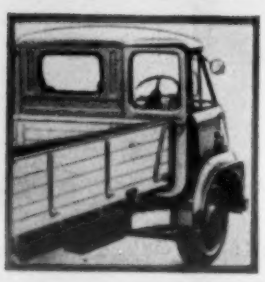
easier access



all round vision



safety door closed



safety door open

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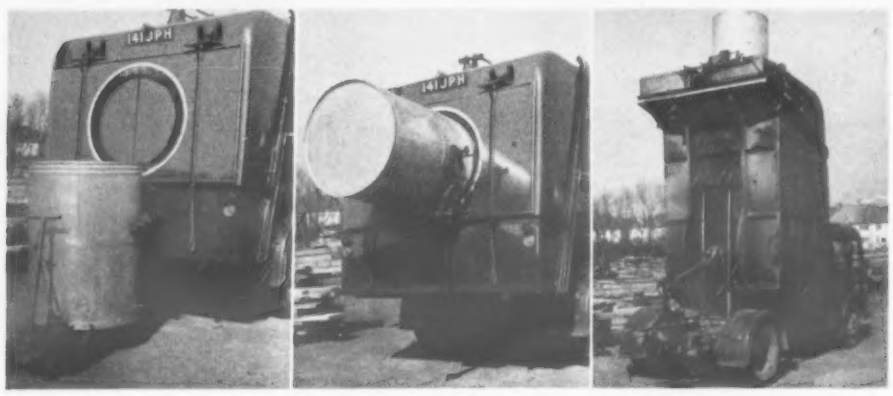
DUSTLESS REFUSE COLLECTION

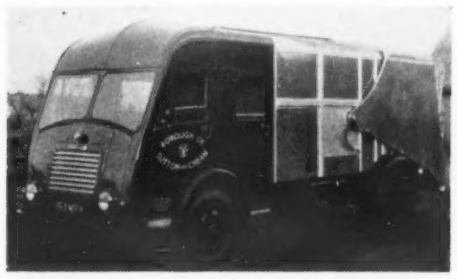
Dennis at Cleansing Conference

THIS year's Cleansing Conference will see the introduction by Dennis Bros., Limited, of the latest developments in the field of power-operated dustless loading of refuse collectors and also a range of dustbins with hinged lids and, when required, rubber inserts in the lids and bases for noiseless use. (The company is a member of the Noise Abatement Society.) The Dennis-Ochsner system or dustless loading is already being introduced in Bristol, St. Marylebone (London) and Edinburgh, while other authorities are taking into service a continuous-loading version of the Dennis Paxit collector with the intention of fitting dustless loading gear at a later date, this ability being one of the features of the system.



The new Dennis Tippax collection vehicle incorporating power-operated dustless loading, one of four for Stoke-on-Trent

Composition and operation of the dustless loading equipment is seen in an accompanying illustration, in which it is applied to a new Dennis Tippax 18-20 cu. yd. collector vehicle, though it can be fitted to a variety of types of refuse collector. Hydraulic gear is used for hoisting and tipping the rear bulk container—that in the illustration has a capacity of 1¼ cu. yd.—and the container aperture is lined with nylon bristle.



New Dennis six-man cab on Dennis Paxit II refuse collector, one of a repeat order for Sutton and Cheam

The new Tippax collector has been developed to combine some of the advantages of more expensive load-compressing machines, namely consolidation of load without manual trimming, an enclosed body and dust-free rear loading. Since no working parts are in contact with the load, maintenance has been kept low. The vehicle is based on a steel-alloy main frame and can be powered by either the well-established Dennis Type D 70-b.h.p. side-valve petrol engine or Perkins P6 83-b.h.p. diesel. Transmission is through a single dryplate clutch, four-speed gearbox and fully floating spiral bevel axle.

The 18-20 cu. yd. body is of ⅛-in. steel plate and is arranged to tip forwards for compacting the load into the rounded front end and backwards for discharging the load through rear doors. Operation is entirely hydraulic, including opening the rear doors, and selection of direction of tip is by a lever in the cab, which is combined with the main hydraulic selection lever. Simplicity is a feature of the control, for example, the rear door locks are operated automatically when rearward tip is selected. Overall dimensions of the Tippax are length 21 ft. 3 in., width 7 ft. 6 in. and height unladen 10 ft. 7 in. Height of the loading rail from the ground unladen is 4 ft. 6 in., while overall height in the forward-tipped position is 18 ft. 4 in. and in the discharging position it is 13 ft. 10 in.

New Crew Cabs

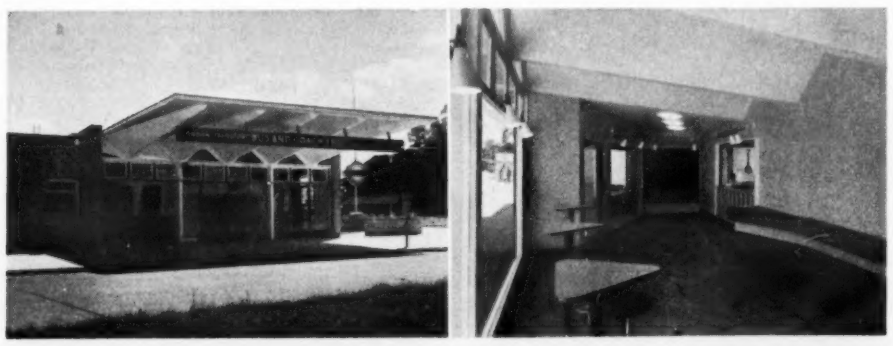
The vehicle is equipped with a new Dennis crew cab with flush frontal treatment and inset lamps, stout bumper and towing eye. Other features are generous seating for six, with tool lockers and provision for clothing, and full-length doors with recessed handles. Only one door is fitted on the offside to avoid the danger of men stepping out into the traffic stream. The new cab is also fitted to a Paxit II refuse collection vehicle at the exhibition.

Apart from the Tippax, in fact, the Dennis participation is an all-Paxit show and various versions of this popular load-compressing vehicle are exhibited with conventional power-operated loading gear, hand- and power-operated dustless loading gear and bulk container lifting equipment.

New Crawley Bus Station

TO HARMONISE WITH SURROUNDINGS

THE new bus station building in Three Bridges Road, Crawley, was opened on May 25. It includes a comfortable glass-fronted waiting room for passengers, and inquiry offices for both London Transport and Southdown bus and coach services, where advance bookings can be made for tours and excursions. The waiting room includes a tea bar serving light refreshments which can be taken out on to a paved tea terrace surrounded by flower boxes. There are also left luggage and parcel facilities and a canteen seating 40 for bus staff. The tea bar and canteen are served by the same kitchen. Public lavatories are incorporated, these being provided and maintained by the local authority.



The new building at Crawley bus station with the tea terrace on the right; interior of the waiting-room showing the inquiry counters and self-service tea bar

The new single-storey building, which forms the focal point of the bus station and has been designed to harmonise with the general atmosphere of the New Town, is faced in hand-made multi-coloured bricks with window surrounds of slate. A special feature is the tea terrace paved in 2 ft. by 1 ft. 6 in. grey-green slabs incorporating tile insets. At the front of the building is a mono-pitched, timbered roof with cantilevered projecting "fingers" to form a covered entrance. This roof is surfaced with 24-gauge copper and the remainder of the building has flat roofs with clerestory lights to the kitchen area to give adequate ventilation as well as light. The flat roofs are finished in ¾-in. asphalt on Elasticell screed on concrete. All copings are in slate.

The building has an area of 3,000 sq. ft., and is laid out with flower beds, the external publicity panel area being paved in beach cobbles. Inside, the walls of the public rooms have been finished in coloured plastics fabric applied to the plaster walls with an adhesive, and the floors finished with lino tiles, laid to pattern. In the kitchen and other working areas, cream glazed tiles have been used on the walls with 6 in. by 6 in. heather brown quarry tiles for the floors. In winter, the building will be heated by oil-fired automatic boilers, a similar smaller boiler being used for hot-water supplies the whole year round. Radiators are used in most rooms, but the glass window-wall of the tea bar and waiting room has floor-level skirting-type heating which produces a current of warm air over the glass and keeps the windows free from mist. The building was designed under the direction of Mr. T. R. Bilbow, F.R.I.B.A., architect, London Transport, and the main contractor was Whyatt (Builders), Limited, London, S.W.16.

Building work for the British Motor Corporation's new factory at Bathgate, West Lothian, was inaugurated by Lord Craigton, Minister of State for Scotland, on June 1. Site preparation is now in progress and it is hoped to start building work within three months. The first factory building will be completed by the middle of next year and the other two about nine months later. Production will start towards the end of 1961 and will rapidly build up towards the planned rate of 1,000 commercial vehicles and 750 tractors a week.

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The GENERAL STEAM NAVIGATION CO. LTD.
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SEA LINKS WITH THE CONTINENT

*25—By General Steam to Germany**

SINCE the first quarter of the 19th century the house flag of the General Steam Navigation Co., Limited, has been a familiar sight in many European ports. Some of the earliest operations of the company concerned trade between London River and ports in Germany. In 1865, for example, the p.s. *Taurus*, a vessel of 621 net and 838 gross tons, was built specially equipped to carry 650 head of cattle and about 500 sheep—a profitable trade at that time. She was put on a weekly Schleswig-Holstein—London run. But it is the ports of Bremen and Hamburg that have played the most important part through the many years that G.S.N. vessels have plied to and from Northern Europe.

Although primarily concerned with the carriage of cargo it is of interest to note that as far back as 1826 passengers were carried by the company from London to Hamburg in 54 hr. every Saturday, the fare being £7 fore cabin to £9 chief cabin.

Nineteenth-Century Trade

From 1836 until 1860 trade developed steadily and there was little of major importance affecting U.K.-Continental services, but in 1861 the British railway companies obtained steamship powers. This, coupled with the Franco-German war, eventually had the effect of reducing the passenger traffic and further cargo trades were developed, a process which has gone on through the years to the present day either by the provision of new services, joint services with other shipowners or the acquisition of other shipping lines.

General Steam has always been to the forefront in ship design from the days of 1824 when it owned 15 wooden vessels "propelled by paddle machinery" to the period since 1936 when modern type motor vessels were added to the fleet continuously.

Many will be familiar with the ship nomenclature associated with ornithology adopted by the company. Although vessels are interchangeable between the various lines operated by G.S.N. some details of the present fleet will no doubt be of interest, particularly as it is intended to deal with operations to other European ports in subsequent articles.

VESSELS OF THE GENERAL STEAM NAVIGATION CO., LIMITED

Cargo vessels	*Gross registered tonnage*	*Cargo vessels*	*Gross registered tonnage*
Adjutant	1,366·17	Mavis	381·12
Auk	1,237·92	Oriole	488·65
Alouette	275·69	Peregrine	889·55
Bullfinch	435·89	Petrel	920·70
Corncrake	639·92	Ptarmigan	958·62
Crane	834·51	Redstart	639·92
Drake	530·62	Ringdove	1,101·58
Fauvette	591·93	Sandpiper	916·08
Gannet	922·50	Seamew	1,219·64
Goldfinch	453·97	Starling	1,356·10
Grebe	932·86	Stork	492·57
Greenfinch	392·15	Swift	787·22
Philomel	1,274·02	Teal	1,147·51
Heron	943·48	Tern	1,028·07
Hirondelle	787·22	Whitewing	1,101·89
Kingfisher	492·57	Woodcock	959·17
Lapwing	920·70	Woodlark	932·79
Laverock	1,209·36	Woodwren	968·11
Mallard	364·15		

All vessels are capable of accommodating container traffic and several vessels on the Hamburg and Bremen trades have refrigerated space with temperature below zero obtainable. Tween deck vessels of approximately 1,200 tons gross are also in the fleet. These cargo vessels are painted black with a narrow white stripe running round them; the upper works are white and the black funnel carries a representation of the company's house flag depicting the globe, the letters G.S.N.C. and the date 1824.

The pattern of services today between ports in the United Kingdom and Germany may be summarised as follows:

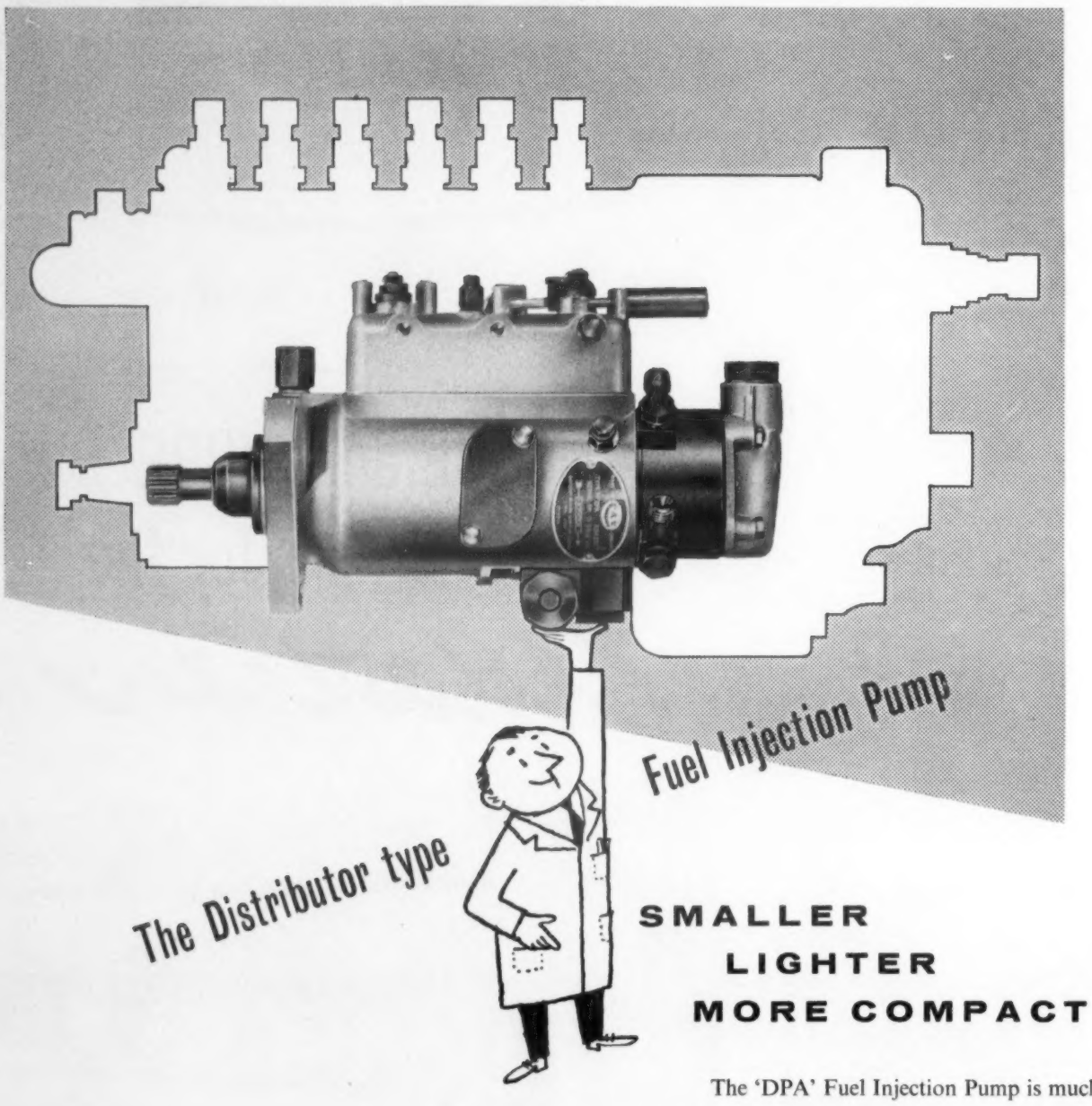
London—Hamburg	Three times weekly
London—Bremen	Once or twice weekly
London—Duisburg, Krefeld-Uerdingen, Dusseldorf, Cologne (Rhine ports)	Two or three sailings weekly
Bristol Channel ports via Southampton—Hamburg, Bremen (In conjunction with Bugsiev Reederei und Bergungs A.G.)	Approximately every 10 days
Felixstowe—Rhine ports	Weekly

The loading berth in London for the Hamburg trade is Regent's Canal Dock with quay cranes lifting from 3-10 tons; for the Bremen trade vessels berth in Surrey Commercial Dock, quay cranes 30 cwt., mobile cranes 4 tons and floating crane 50 tons lift respectively being available. Access to both docks is by road or water and warehouse space can be obtained. In the Bristol Channel area the dock systems of Bristol, Avonmouth, Newport, Cardiff, Barry, Port Talbot and Swansea are served according to sailing and inducement. At Southampton sailings operate from the short sea berths.

In Germany the quay cranes at Hamburg are capable of lifting up to 3 tons and when two are married together 5½ tons can be lifted. In Bremen similar quay cranes lift 3 to 6 tons and there are also 10 floating cranes including those of 60 tons, 150 tons and 250 tons.

(To be continued)

* No. 24 appeared January 9.



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The 'DPA' Fuel Injection Pump is much smaller than the comparable in-line pump for similar duty, and is only a fraction of the weight. It may be mounted horizontally or vertically as desired. It forms a compact unit which fits snugly alongside the engine, with a simple direct drive, and thus permits considerable simplification of engine design with corresponding saving of cost. The 'DPA' pump is suitable for high speed diesels of up to approximately 1.5 litres per cylinder.

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RAIL SERVICES NORTH OF INVERNESS

Faster Timings and Rationalisation

THE scheme for the reorganisation of rail services north of Inverness, approved by the Transport Users' Consultative Committee for Scotland, begins on June 13; it involves the closing of a large number of stations, but train services between Inverness and Wick and Thurso will be speeded up. The saving in journey times will vary from 25 to 41 min. The service will be improved still further when diesel trains take over from steam later on this year.

Highland Omnibuses will provide connecting services for centres where passenger trains will be withdrawn. On platform 6 at Inverness railway station buses will await the arrival of trains from the south at 8.39 a.m., 3.31 p.m. and 9.43 p.m. Buses from the north will set down passengers on the same platform to connect with the 3.45 p.m. and 5.40 p.m. southbound trains. Highland Omnibuses, Limited, will supply bus facilities in the areas of the closed stations to and from the railheads at Inverness, Dingwall, Invergordon, Fearn, Tain, Bonar Bridge, Lairg, Golspie, Brora, Helmsdale, Georgemas Junction and Wick.

Savings

Under the scheme the passenger train service will be withdrawn from the following 20 stations on the Inverness—Wick main line: Bunchrew, Lentran, Beauly, Muir of Ord, Conon, Foulis, Evanton, Alness, Delny, Kildary, Nigg, Edderton, Rogart, The Mound, Loth, Halkirk, Bower, Watten and Bilbster. The Dornoch branch — Cambusavie Platform, Skelbo, Embo and Dornoch—will be closed to all traffic. The Fortrose freight branch will be closed to all traffic. The freight and parcels stations are Redcastle, Allangrange, Munlochy, Avoch and Fortrose. On the Inverness—Wick line Foulis and Bilbster will cease to deal with freight and parcels traffic. Delny, The Mound, Loth, Halkirk and Bower will deal with freight and parcels traffic in full wagon loads only. Other stations on this line where passenger services are to be withdrawn will continue to deal with freight and parcels traffic in wagon loads or less than wagon loads. British Railways lorries will continue to provide cartage facilities throughout the area. As indicated in our May 14 issue, the scheme will save British Railways £41,000 a year.

GRANTON OIL TERMINAL

Regent £500,000 Scheme

THIRD announcement within four months of different stages in the development of storage and distribution facilities to keep pace with a growing demand for its products was recently made by Regent Oil Co., Limited. The first was of the intention to go ahead with the construction of a £500,000 ocean oil terminal at Cardiff docks; the second was the official opening of a 2 million-gal. storage depot at Hendon Dock, Sunderland, a scheme that was completed in only nine months; and the latest announcement is of another £500,000 terminal at Granton Harbour, Edinburgh.

The new terminal will occupy an area of 12 acres on land owned by a private company, Granton Harbour, Limited, and is situated on the south side of the Firth of Forth 1½ miles west of Leith, the main port of Edinburgh. It is strategically placed between two main petroleum consumer centres, Edinburgh and Glasgow. Construction will be directly controlled by Regent engineering staff and completion is anticipated early in 1961.

Facilities

Storage facilities for 30,000 tons (over 8 million gal.) of petroleum products will include all automotive, domestic fuels and lubricants as well as fuel oil. Some 3,000 ft. of pipelines will connect the ocean tankships berthing at the West Pier with the terminal. Tankers up to 18,000 tons will be accommodated. Piping, pumping, heating and fuelling facilities for road and rail transport for both light and fuel oils will be installed. There will be an office block and staff messroom and servicing and washing bays will be built to cater for the company's own transport.

Considerable investigation and surveys were carried out in order to find the most suitable location for this large ocean terminal. Regent Oil Company states that the British Transport Commission gave every possible co-operation in considering the extension of the existing terminal at Grangemouth and attempting to find a satisfactory site to accommodate ocean tankers and provide sufficient acreage for the necessary expansion. The volume of passenger and general cargo traffic has so increased at Grangemouth, however, as to make it impracticable to continue to receive petroleum shipments. It is anticipated that most of the Regent Oil Company staff at Grangemouth will move to the new terminal.

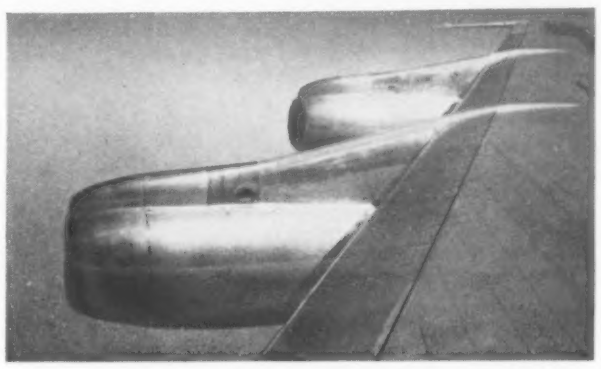
MODERN AIRWAYS and COMMERCIAL AVIATION SECTION

B.O.A.C. RECOVERS GROUND

Introduction of Rolls-Royce Boeing 707s Advanced

NORTH ATLANTIC OPERATION

IT can be said that the British Overseas Airways Corporation, after a series of delays which were not of its own making, has been recompensed to some extent by the very satisfactory progress which it has made with the introduction to service of the first of its 15 Rolls-Royce Conway-engined Boeing 707—436s. Aided by the availability of its flight simulator—it is the first time that one has been available prior to the delivery of the first aircraft—the corporation has been able to anticipate the planned introduction dates for the new machines, which were thrice-weekly flights between London and New York commencing June 6 (altered to June 1), and weekly flights between London, Prestwick, Montreal and Toronto beginning on June 18 (altered to June 1). Frequency of the London—New York flights were to be increased to daily from June 15, with a further three each week via Prestwick from July 10 and a fourth in August. The weekly London — Prestwick — Toronto service due to start on June 22 should become twice weekly on August 14 and on August 27 a service to operate London—Prestwick—Montreal—Toronto is due to start.



The pods of the starboard Rolls-Royce Conways pictured from the passenger cabin above Nova Scotia

As it is the services began on May 27 with the operation of extra flights between London and New York, subsequent ones being scheduled for June 2, 3, 4, 9, 11, 12 and 14 and returning the following day, and between London, Prestwick, Montreal and Toronto on June 4, 8, 11 and 15. In addition certain services scheduled for operation by Comets are likely to be 707-operated. The demand for accommodation on the North Atlantic services is running at such a level that there are no qualms as to whether the additional seats will be filled.

Transatlantic Proving Flights

While much of the training has been carried out on the flight simulator, there must, of course, be thorough training on the actual aircraft. This has taken the form of an intensive flight training programme from Tucson, Arizona, as aircraft become available, a series of transatlantic proving flights. It has been this last part of the programme which it has been possible to accelerate to some extent and also to compress and we were very glad, therefore, to be able to participate in the last of such operations before the aircraft entered commercial service. The occasion also provided a demonstration of some of the problems with which operators of large jet aircraft are confronted. It is true that they are not, in the main, peculiar to the type of aircraft, but they can have more disadvantageous effects than with the older types.

The conduct of an individual flight on its best economic basis is something of an exercise in itself and if conditions turn out to be such that the original flight plan must be varied, then it is necessary to decide whether speed should be increased and, with it, fuel consumption in favour of reducing aircraft hours or whether an earlier arrival at destination will result merely in a holding operation with consequent consumption of fuel and aircraft hours. The aircraft in which we flew, G-APFB, was commanded by Captain J. Woodman, who was acting as check captain to two other commanders, and the original flight plan was to operate from London to Toronto with a call at New York on the way. The estimated flight time for the London—New York sector was 6 hr. 40 min. and it should be recorded at the outset that our time to overhead New York was, in fact, 6 hr. 43 min. We then had to spend 40 min. awaiting an opportunity to land and the actual chocks-to-chocks time was 7 hr. 40 min., which is 20 min. in excess of the time allowed by B.O.A.C. in its schedules.

Precise Flying

All-up weight of the aircraft at take-off was 132,912 kg. (292,406 lb.) and within 27 min. of take-off we had reached 32,000 ft. at which height we were to continue for half an hour before climbing to 35,000 ft., which had been put in as our height for the major part of the Atlantic crossing. In fact we adhered pretty closely to that plan and, although conditions were not quite as expected on the earlier stages—we were five minutes behind estimate at 30 deg. W, we were only a minute out when passing over Gander. Less than an hour later we had passed Halifax (Nova Scotia) and 6 hr. 13 min. after taking off we were over Boston, which had been given as our alternate for New York. When we did land at Idlewild we took relatively little time to reach our station on the apron. We had used 49,900 kg. of fuel which gave us a fuel consumption figure of approximately 1,629 kg. per engine per hour.

The airport situation at New York is complicated at present by the fact that the instrument runway at La Guardia is closed for reconstruction. A number of flights has consequently been diverted to Idlewild or to Newark and the former, with its increasing international traffic, is hard pressed to cope, particularly if the weather is indifferent. Although conditions were quite good, we had a demonstration of this when it came to leaving for Toronto after a stay of a little over an hour. Aircraft are towed away from the apron to the starting area surrounded by blast sheeting and this process commenced at 16.40 G.M.T. Engines were started and we set out for the runway at 16.45. Having sat patiently in the run-up area we were then directed to give way to two other aircraft which had followed us up and it was not until 17.10 that we started our take-off run on 25L. The all-up weight was only 89,705 kg. and we fairly leapt off the ground!

The flight plan was to cruise at 31,000 ft. and the time to Toronto was put at 1 hr. After we had been flying for 40 min. however, the captain informed us that the fog at Toronto had worsened and that we were being diverted to Montreal where the weather was clear. Thus it proved and we landed at 18.32 G.M.T. The fuel consumption of 11,380 kg. was undoubtedly inflated by the amount of time which we had to spend on the ground. Fuel-wasting ground delays also marred later Toronto—Montreal and Montreal—New York flights.

Return Journey

Weather in Toronto again delayed the take-off from Montreal the following morning and the flight plan time of 50 min. with a cruising height of 31,000 ft. was, in fact, exceeded by 6 min., while a chocks-to-chocks time of 1 hr. 10 min. compared with 1 hr. 5 min. allowed in the new schedules. In these schedules 10 min. less is allowed for the eastbound flight on this sector and we waited to see whether the estimated flying time of 45 min. would, in fact, be achieved. The weather was still unpleasant and ground time at Malton took up 11 min. while taxying-in at Dorval required 7 min. to bring the total time to 1 hr. 18 min. This was just one of those occasions when the fates were against us. The weather continued cheerless and we left the aircraft at Dorval to undertake two demonstration flights; two had also been made the previous afternoon at Toronto.

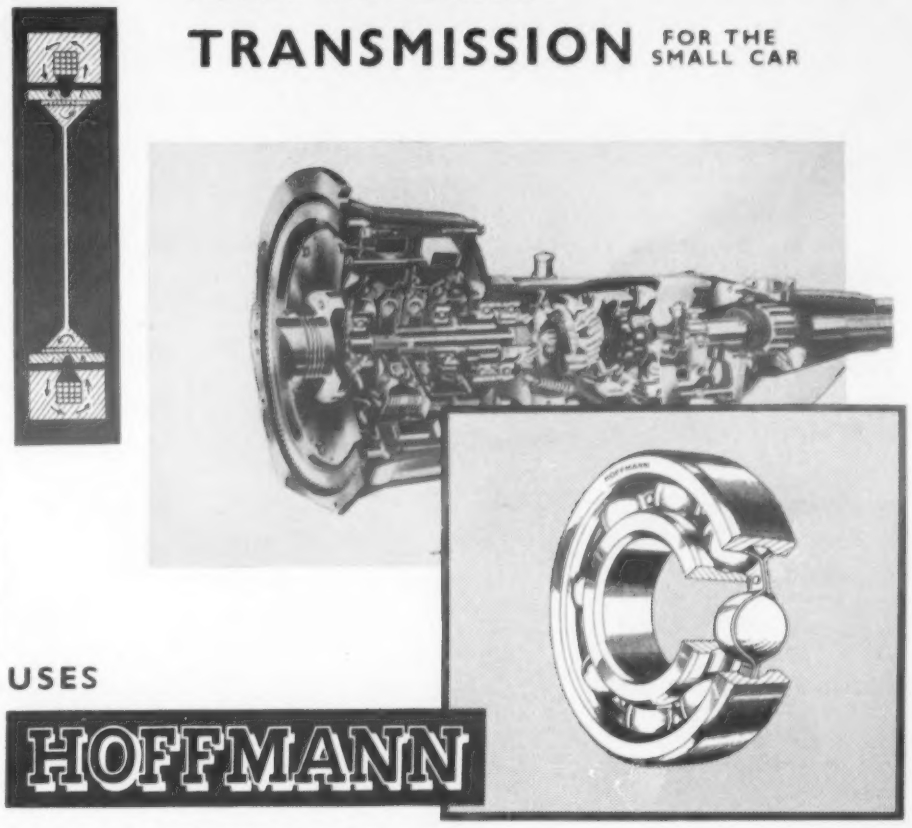
The Boeing 707-436 at Malton Airport, Toronto, after landing in conditions which were little above minimum requirements

The forecast on May 24 was rather better and the New York weather, which had been very poor the previous night, was reported to be improving. To make reasonably certain our proposed departure time was delayed one hour—pleasant news after a series of frustrated early morning departures—and we left the apron at 13.18 G.M.T. with an estimated flight time of 55 min. There was a good deal of traffic in the New York area but we were airborne for only about five minutes more than this and chocks-to-chocks time was 1 hr. 12 min. Further demonstration flights were scheduled for New York and duly took place, although a disproportionate amount of time was spent twixt apron and runway. Next morning, however, we fared reasonably well and required only 15 min. from chocks to take-off. We planned to fly non-stop from New York to London with an estimated time of 6 hr. 20 min. which is the figure set in the schedules. For the first time, however, the forecast was less precise and we needed, in the upshot, 6 hr. 41 min. and had a chocks-to-chocks time of 7 hr. 5 min. Taking off at 122,000 kg. we landed at 79,260, to give a fuel consumption of 42,740 kg., or more than 7,000 kg. less than in the westbound direction.

High Service Standards

The interior arrangement of the B.O.A.C. aircraft will generally be for 34 first- and 97 economy-class passengers and the journey is likely to be well-organised both operationally and in standards of passenger service. Vigorous efforts are being made to ensure that the best possible use is also made of the cargo capacity of the aircraft which amounts to 1,700 cu. ft. Operating crew will normally comprise two pilots, a navigating officer and a flight engineer, while the cabin crew will be three stewards and three stewardesses. There will certainly be no grounds for any complaint if the aircraft are flown as well and the passengers are attended as assiduously as was the case on our flights.

SMITHS NEW
FULLY AUTOMATIC
TRANSMISSION FOR THE SMALL CAR



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BALL BEARINGS

Smiths fully automatic transmission makes use of a layshaft type gearbox but, by the clever application of two magnetic powder couplings and an electro-mechanical control system, gives fully automatic gear changing and elimination of the clutch pedal.
Hoffmann Ball Bearings are fitted in this transmission and contribute much to the smoothness and efficiency of the whole system.

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NEWS FROM ALL QUARTERS

North Eastern Station Withdrawals

Passenger service will be withdrawn from Hunslet, Lockington, Lofthouse and Outwood stations on the North Eastern Region on and after June 13.

L.M.R. Closures

On the London Midland Region passenger train service between Seaton (Rutland) and Uppingham will be withdrawn on and from June 13. Also going on that date is the service between Burton-on-Trent and Tutbury, together with Bay Horse, Althorp Park and Armitage stations, elsewhere on the system.

By-Pass Near Durham City

The Minister of Transport has authorised the construction of a by-pass to divert the Great North Road (A.1) round Framwellgate Moor and Pity Me, near Durham City, at an estimated cost of £275,410. Work will be completed within a year. Another grant of £539,479 has been made towards the cost of constructing the third section of the Coventry inner ring road, designed to divert through traffic from the re-developed centre of the city. This section will extend 760 yd. from Holyhead Road to Queens Road, and will include a flyover-roundabout at Moat Street.

Licence Fees Not Taxable

Important to numerous manufacturers in this country, Mr. Justice Pennycuick, in the Chancery Division last week held that payments to Rolls-Royce, Limited, by foreign governments or companies for technical knowledge to enable them to manufacture jet aero-engines arose from the sale of a capital asset and was excluded from the computation of the company's profits. He dismissed, with costs, four appeals by the Crown against decisions of the Special Commissioners for Income Tax allowing appeals by Rolls-Royce against assessments to income tax, excess profits tax, profits tax and excess profits levy arising from the sale of technical knowledge. The appeals concerned assessments on the company's profits, amounting to more than £15 million for the years 1948-55.

One-Way in Chancery Lane

An important traffic experiment in the Fleet Street area—one-way working in Chancery Lane, New Fetter Lane and Fetter Lane—is to be introduced this month. When the reconstructed New Fetter Lane, linking Fetter Lane and Holborn Circus, was opened to traffic in November last, an experimental one-way traffic scheme was instituted in Fetter Lane, between New Fetter Lane and Fleet Street. Under this, all traffic in this length was required to travel from north to south. The police are now proposing, with the agreement of the London Travel Committee and the consent of the Minister of Transport, a further experiment which will make Chancery Lane a northbound one-way street to partner New Fetter Lane and Fetter Lane southbound. The 171 bus route, which at present operates both ways in Chancery Lane, will, on its southward journey, proceed via Holborn, Holborn Circus, New Fetter Lane to Fleet Street.

Electric Train Services Start in November

Electric train services between Liverpool Street and Chingford, Enfield, Hertford East and Bishop's Stortford will be introduced on November 21.

Diesel Expresses Studied in New Zealand

Introduction of fast daylight express train services between Auckland and Wellington is being actively studied, says the New Zealand Minister of Railways. An overnight diesel-hauled passenger express between these points would save an hour over the oil-fired steam locomotive and a lightweight air-conditioned diesel on this steeply graded route might save 2½ hours.

Street-Cars Desire Workers

The Melbourne and Metropolitan Tramways Board is anxious to recruit in Britain 100 men to drive or conduct the city's trams. When Sir Arthur Warner, Minister of Transport in Victoria, was recently in London, he asserted that Melbourne is likely to remain faithful to the tramcar, except on a few routes where buses will replace them, for the next 25 years at least.

Marylebone Rebuilding Scheme Rejected

Plans by a private developer to construct residential flats, a 30-storey office block and an elevated helicopter landing site, with elevated road and pedestrian ways over the Marylebone railway site, have been rejected by the B.T.C., which said that it had the future of the property under consideration in other directions. The site covered an area bounded by St. Johns Wood Road, Park Road, Rossmore Road and Lisson Grove.

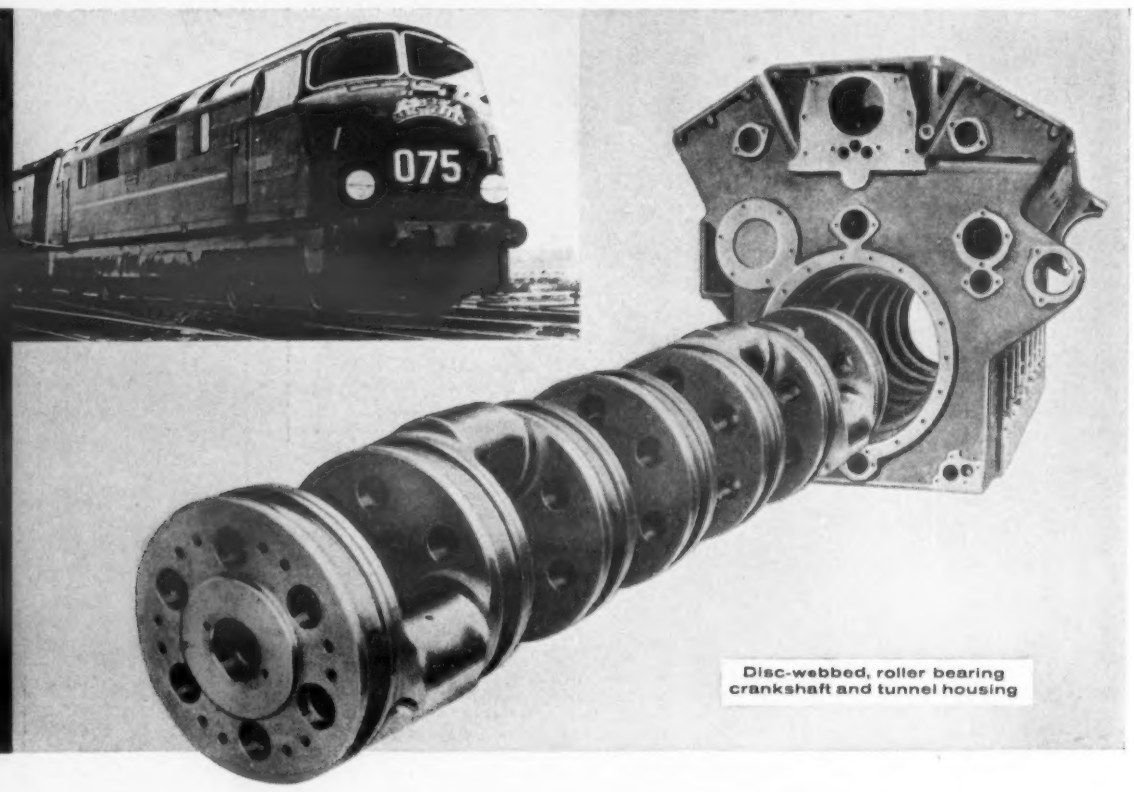
Survey of Traffic Crossing the Thames

With a view to assessing the tolls to be charged when the Dartford—Purfleet Tunnel is open to the public, a survey is to be made within the next few days of traffic using the Thames crossings from Tower Bridge down to the Gravesend—Tilbury ferry. The Dartford Tunnel Committee is arranging for the survey in consultation with the Ministry of Transport. It is intended to revise the earlier estimates of traffic expected to use the tunnel and these estimates will be made in the appropriate classes—private cars, commercial vehicles, coaches and others.

Maidstone By-Pass Motorway

More than five miles of the first motorway in south-east England, the Maidstone by-pass, was opened to traffic on Wednesday in time for the Whitsun holiday traffic rush. When completed the motorway, designated A20(M), will have cost £2,300,000. Until the western section has been completed drivers travelling from London will reach the motorway by following A2011 through Aylesford, but when the last section is completed they will leave the A20 at a new roundabout at Coldharbour Lane, which is near the British Legion Village. They will then follow a modernised length of Coldharbour Lane and join the motorway at a two-level junction which has been designed to fit in eventually with the layout of the future Ditton by-pass. They will rejoin the A20 near Hollingbourne.

Maybach rail traction
—diesel engines—
from 400 to 2,000 hp
can achieve
16,000 hours between
major overhauls . . .



Disc-webbed, roller bearing crankshaft and tunnel housing

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Bristol Siddeley Engines Limited produce Maybach* rail traction diesel engines. Covering a power range from 400 to 2,000 hp, these diesels are amazingly reliable and have shown that they can achieve major overhaul lives of 12,000 to 16,000 hours!

The *proven* basic design features of the whole range (straight 4 to 16-cylinder V) are the same, and each unit can be turbo-charged, or turbo-charged and intercooled. The range operates between 1,200 and 1,600 rpm and *combines the best performance and design qualities of high, medium and low-speed diesel engines:* light weight and compactness, excellent thermal efficiency and extremely long life.

Advanced design features

The pistons are pressure-oil cooled. This gives very efficient heat dissipation and reduces liner and gas ring wear to a minimum. The roller bearing, disc-webbed crankshaft is exceptionally rigid within its tunnel housing, and in practice withdrawal is not normally necessary before 12,000 hours running. So low is big end bearing wear that in some cases the protective lead flash has been found to be intact when examined after 15,000 hours running!

Since the cylinder bore and stroke, and the majority of components, are identical in all models, spares stocks are considerably reduced. Servicing also has been greatly simplified because much thought has been given to accessibility and the removal of components. And the engines are suitable for both hydraulic and electric transmission.

World-wide application. Maybach rail traction diesel engines are in service all over the world and have built up an unsurpassed record for reliable and economic operation. Bristol Siddeley Maybach diesels power the new diesel hydraulic locomotives of British Railways Western Region and *over 200 engines have already been ordered by British Railways alone.*

For further information please write to: Maybach Sales Manager, Bristol Siddeley Engines Limited, PO Box 17, Coventry, England.

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BRISTOL SIDDELEY ENGINES LIMITED

COMMERCIAL AVIATION

B.E.A. Traffic Grows

FISON-AIRWORK FUTURE

PASSENGER carryings of British European Airways last month were up by no less than 30 per cent on last April. Easter traffic broke all records and during the holiday fortnight, the airline carried more than 140,000 passengers over 50 million passenger-miles which means that it carried nearly four million passenger-miles a day throughout the period. Lord Douglas, chairman of the corporation, has referred to "prospects that we shall carry as many as 2½ million passengers in the six months from April to September." This estimated summer six-monthly total is more than B.E.A. carried in the entire year in 1956-57. As Comets and Vanguards enter service, the Viscounts will be progressively switched to the domestic routes, gradually replacing the older and slower Pionairs. By July the whole of the Irish Sea network would be operated with Viscounts and by next year the whole domestic network would have been turned over to turbine aircraft. The only exceptions would be the two Herons in Scotland and the two DH 89s on Land's End—Scillies. The chairman's message to the staff was written before the announcement that Vanguards had been grounded pending the eradication of engine trouble.

Pengam Moor Sold

The Rover Co., Limited, has acquired the former Cardiff airport at Pengam Moor. The area will be developed for industrial purposes. The airport was used for some years after the 1939-45 war and among services operated therefrom were the B.E.A. helicopter flights to Liverpool. Development potential was very limited, however, and Rhoose was adopted as the airport for Cardiff.

B.E.A.'s New Engineering Base

Three months ahead of schedule, Lord Ashcombe, chairman of Holland and Hannen and Cubitts, Limited, handed over two giant hangar blocks consisting of 20 23,500-sq. ft. bays, on B.E.A.'s £7 million engineering base at London Airport. The hangar blocks were formally accepted by Lord Douglas of Kirtleside, chairman of British European Airways, and a novel way of opening the new buildings was introduced when Lord Ashcombe presented Lord Douglas with a concrete key which actually worked in a specially designed lock.

London—Shannon Service Opened

A direct Viscount service between London and Shannon was opened on May 30 by Aer Lingus, thus reviving the facility provided in 1947 with Vickers Vikings. The airline's incoming transatlantic service connects with the new service daily except Saturdays. The evening service from London connects daily at Shannon with outgoing flights to New York and Boston. A 17-day excursion fare of £16 10s. is available during the summer. In July and August this will be restricted to Tuesdays, Wednesdays, and Thursdays, but on all other days of the week the excursion fare will be £18 18s. Normal return fare is £21 7s.

Lockheed-Kaiser in South America

Lockheed Aircraft International and Industrias Kaiser have together initiated the first aircraft manufacturing venture in South America to be established by United States industry. The new enterprise, named Aviones Lockheed-Kaiser Argentina, will be an equal partnership of Kaiser and Lockheed. Official Government approval of the new Lockheed-Kaiser venture is in accord with a decree signed recently by the Argentine President to encourage Argentine industrial development. Plans of the new company include production of at least 500 LASA 60 light single-engined utility transports, a type developed by Lockheed for use in Latin America, which will also be manufactured in Mexico by Lockheed-Azcarate.

Fison-Airwork Future

Following the recent takeovers and mergers among independent airlines, the Airwork group—now to be known as British United Airways—has become not only the largest British independent airline but also the chief helicopter operator in the country. So that these helicopter activities can more effectively be co-ordinated, Fisons, Limited, has agreed to relinquish its financial interest in Fison-Airwork—formerly a jointly owned helicopter company. Its operations will now become integrated with those of Airwork's other rotary-wing subsidiary, Bristow Helicopters, to form the helicopter division of British United Airways. Fisons Farmwork, Limited, has however ensured that there will be enough aircraft available for agricultural work during the coming season, the majority chartered from British United Airways.

Fisons Pest Control, Limited, and Fisons Farmwork, its subsidiary, will maintain an active interest in aerial spraying so that the results of their research and developments in this field can be passed on to the farming community. In addition their technical resources will continue to be at the disposal of British United Airways.

New Services Approved

The Minister of Aviation, after considering the recommendations of the Air Transport Advisory Council, has approved the operation of the following air services:

An inclusive tour service between Lydd or Manston and Pisa by Silver City Airways, Limited, from June 3 to September 26, 1960.

An inclusive tour service by Transair, Limited, between London (Gatwick) and Palma from May 15 until October 24, 1960.

An inclusive tour service by Silver City Airways, Limited, on the route Lydd or Manston—Copenhagen from May 27 to September 26, 1961.

An inclusive tour service by Silver City Airways, Limited, between Lydd or Manston and Basle from May 1 until October 31, 1960, and for a corresponding period in 1961.

A normal scheduled service by B.E.A. on the route London—Nice (optional)—Ajaccio (optional)—Rome (optional)—Palermo—Malta (optional) for seven years from April, 1960.

An inclusive tour service by Transair, Limited, between London (Gatwick) and Malaga from May 6 until October 10, 1960, and for a corresponding period in 1961.

An inclusive tour service by Transair, Limited, between London (Gatwick) and Tangier from May 6 until October 31, 1960.

An inclusive tour service to be operated by Tradair, Limited, between Southend and Tarbes from May 6 to November 1, 1960.

An inclusive tour service by Silver City Airways, Limited, on the route Manston and/or Lydd—Rotterdam from June 2 to September 30, 1960.

An internal service on the route Bristol and/or Cardiff—Isle of Man by Dan Air Services, Limited, between April and October each year for seven years from May 16, 1960, to October 31, 1966.

An inclusive tour service between London Airport and Innsbruck by Eagle Aviation, Limited, from May 15, 1960, to October 10, 1960, and for corresponding periods in 1961 and 1962.

An inclusive tour service to be operated by B.K.S. Air Transport, Limited, between Southend and Calvi from May 13 to October 30, 1960.

An inclusive tour service between Gatwick and Algiers by Transair, Limited, from May 15 to October 31, 1960.

A normal scheduled service to be operated by Silver City Airways, Limited, between Lydd or Manston and Strasbourg from May 15, 1960, to October, 1962.

RAILWAY STAFF NATIONAL TRIBUNAL

Ronald Morison.

Sir RONALD MORISON, Q.C.(Scot.), M.A., LL.B.

• • • • • •

As recorded in MODERN TRANSPORT at the time, Sir Ronald Peter Morison earlier this year accepted the invitation of the British Transport Commission and the three railway trade unions to succeed Lord Forster as chairman of the Railway Staff National Tribunal for a period of 12 months from January 1, 1960. Born on June 3, 1900, he was educated at Winchester and Edinburgh University where he took his M.A. and his LL.B. with distinction. He was called to the Scottish Bar in 1923 and to the English Bar in 1940. After service with the Scots Guards in the 1939-45 war he was made deputy judge advocate with the rank of major in 1942. Resuming civil work in August, 1944, he was Sheriff of Inverness, Elgin and Nairn in 1944-45 and in the same period Dean of the Faculty of Advocates. Sir Ronald was a member of the Industrial Disputes Tribunal from 1944 to 1954 and in the latter year was appointed a deputy commissioner under the National Insurance Acts, relinquishing the appointment in the following year. Independent chairman of the executive committee of the British Iron and Steel Federation since 1955, Sir Ronald, who was knighted in the last New Year Honours, is chairman of a Departmental Committee on the Probation Service appointed last year and also of the Police Arbitration Tribunal.

IN PARLIAMENT

Meeting Cost of Accidents

RAILWAY ACCOUNTING

MR. C. OSBORNE asked the Minister of Transport, in order to reduce the number of road accidents, to consult with the leading insurance companies to devise a common policy to the effect that the guilty driver shall be made to bear the first £25 of the cost of any accident and the first £50 third-party compensation. MR. ERNEST MARPLES said he was not satisfied that this suggestion, in the form in which it was put, would not involve the possibility of serious injustice to injured parties, but proposed to discuss the whole question of road safety with representatives of the insurance companies and underwriters. There was the difficult question of determining who is guilty. It often cost a very great sum of money. "Quite frankly, in my view I do not think a cash fine is a deterrent. I think it is less effective than suspension of the driving licence," said the Minister. MR. R. T. PAGET asked him to bear in mind that, if any posal of this sort went through, insurance companies should not be allowed to insert a clause in their policies entitling them to settle claims upon the basis that their clients were to blame.

No-Accident Record of M1

Only one fatal accident occurred on M1 between March 1 and May 21. An average of 15,900 motor vehicles daily used the motorway in April. Later figures are not yet available. (MR. JOHN HAY, Joint Parliamentary Secretary, Ministry of Transport.)

Raising of Tower Bridge

Referred by MR. N. DODDS to the road traffic congestion caused by the opening of Tower Bridge because of the priority conferred on shipping using the Thames by the Tower Bridge Act, 1875, MR. MARPLES said the basic compromise of the Act must be maintained, but shipping interests are co-operating in various minor alleviations and the prevention of abuses.

Investigation of Railway Accountancy

MR. F. NOEL-BAKER asked the Minister of Transport the name of the firm of chartered accountants which is studying the possibility of separate accounting for the railway regions. MR. ERNEST MARPLES said that these arrangements are the responsibility of the British Transport Commission. The latter had suggested the firm in question because of its knowledge of the railway industry and it had instructed the firm.

Doric Arch—Who Re-erects It?

MR. WYATT drew attention to the fact that the British Transport Commission had said that although it will pull down the Doric Arch at Euston Station in such a way that it can be re-erected, it does not propose to provide the money to re-erect it. Only the Minister of Housing, he thought, could now save this historic building which everybody with any interest in the matter—including the Royal Fine Arts Commission—was anxious to preserve.

Shipbuilding Sub-Committee

The Minister of Transport told MR. W. DIGBY (as has already been announced) that Sir James Dunnett, Permanent Secretary, Ministry of Transport, is the chairman of the special sub-committee of the Shipbuilding Advisory Committee, which is to study the future of the industry. MR. ERNEST MARPLES went on: "I attach the greatest importance to this sub-committee, because it has been many years before we were able to set it up. It is part of the full Shipbuilding Advisory Committee and it will report to that committee in the first instance. It can consider any matters relevant to the future of the shipbuilding and shiprepairing industries." He did not know when it would report. It held its first meeting on May 5.

★

ROADMAKERS' LUNCHEON

Macadam Industries

BY 1980, if present trends continued, there would be 20 million vehicles on the roads of Great Britain, rather more than half of them private cars. Lord Chesham, Joint Parliamentary Secretary to the Ministry of Transport, said so at the annual luncheon of the Federation of Coated Macadam Industries in London last week. He was outlining the four directions in which the government was attacking the roads problem: new motorways; urban bottlenecks; lesser schemes as funds allow; better use of present roads by education, engineering and enforcement. Over 200 miles of road had been completed or were under construction at this time; besides this, 1,549 major schemes had been started in 1959 in England and Wales alone.

He defended the rate at which the programme was developing. It was impracticable to make a sudden jump ahead, but the government would be honouring its pledge to spend twice as much in the coming five years on the roads as was spent in the previous five years. In 1955-56 £8½ million was spent on construction—in 1960-61 it would be £65 million. But they were looking into the question of toll roads, in relation to other matters, as a means of speeding up roadbuilding.

Industry Record

Last year members of the Federation laid a record nine million tons of coated macadam, said Mr. P. A. Valton, chairman of the F.C.M.I. The total demand for all road materials was still far from large, but it was satisfactory that coated macadam was meeting the quality tests demanded of it. They were ready to meet any demands made of them. An encouraging feature of the year had been the inclusion, within existing specifications, of denser bituminous materials for more heavily trafficked roads, and the official interest already shown in the Federation's own specifications for medium and dense base course materials and for road bases.

Sir William Glanville, Director of Road Research, who replied for the guests, was reassuring as to demand. It was 10 years since he had last had this privilege of replying. Since then we had had heavier vehicles travelling at double the speed on our roads, and the variation between summer and winter traffic volume had evened out. He had calculated that in recent years one ton of coated macadam had been manufactured for every additional vehicle in use. If Lord Chesham's estimate for 1980 was correct, and if that trend continued, the prospects for the industry seemed bright.

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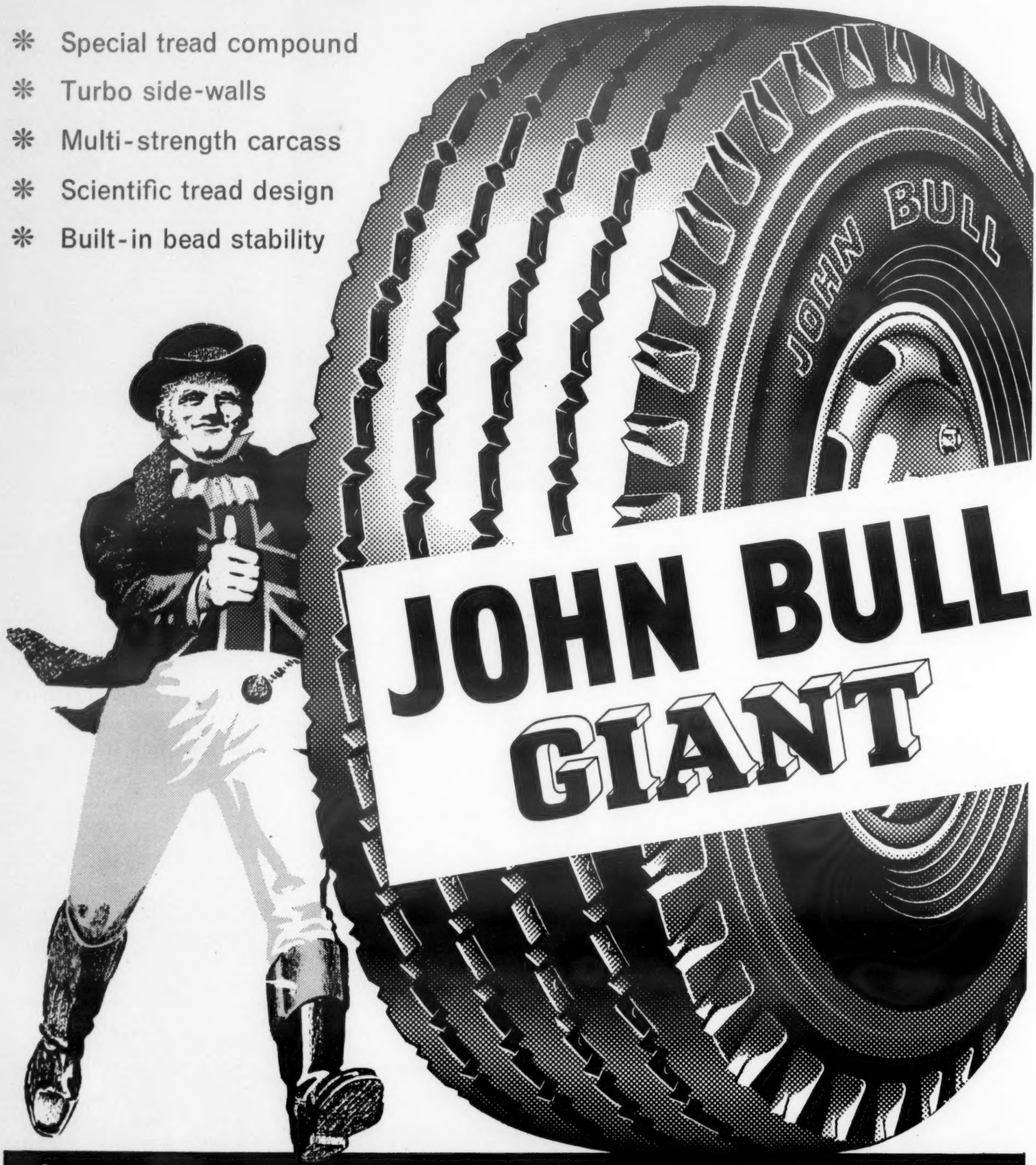

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NEW ELECTRONIC BUSINESS COMPUTER

The I.C.T. Type 1301

TECHNICAL AND OPERATIONAL DETAILS

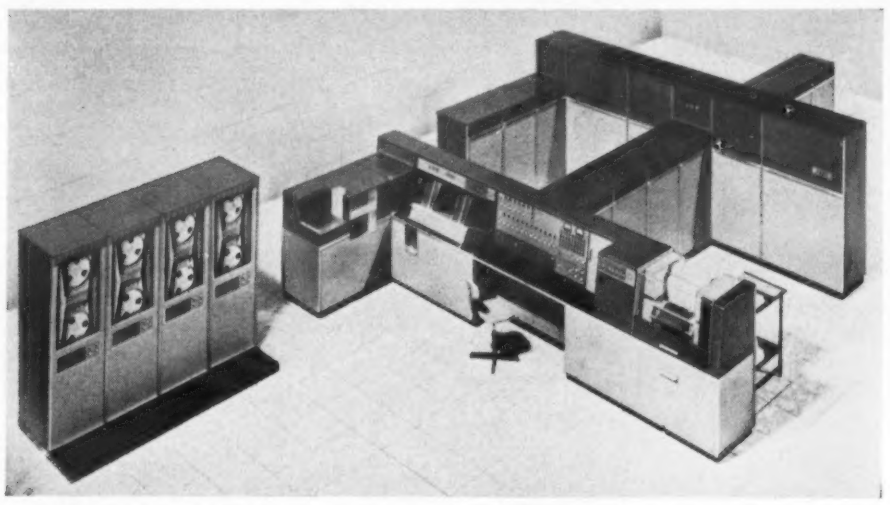
AN entirely new electronic business computer of advanced design is announced by International Computers and Tabulators, Limited. It is to be known as the I.C.T. Type 1301 Data Processing System, and has transistors instead of the conventional thermionic valves. The 1301 is a product of the combined experience and technical knowledge of International Computers and Tabulators, Limited, and the General Electric Co., Limited, of England. In the design and development of the 1301 the two companies have made successful use of their jointly owned design and co-ordinating group, Computer Developments, Limited.

The 1301 is simple to operate and to programme; it is suitable for a wide range of industrial and commercial organisations, from those requiring a punched-card data processing system capable of very high operating speeds to those requiring a fully integrated high-speed magnetic tape system. A salient feature is that it is possible to increase the size or the operating speed of the basic machine as originally installed to meet the data processing needs of a growing company. Speed and capacity are exceptional.

Basic Machine

The basic machine uses 80-column punched cards and incorporates a card reader, a line printer, card punch, a core store with a capacity of 400 words, and a rotary magnetic drum store with a capacity of 12,000 words. Furthermore, the core store can be increased to 2,000 words in steps of 400, while the drum storage can be increased, by the addition of seven more drums, to no fewer than 96,000 words. Up to eight magnetic tape transport units can also be added to the machine, and for this purpose two tape systems are available: standard, with an input feed rate of 22,500 decimal digits a second; and high performance, with a feed rate of 90,000 decimal digits a second. A single address system of programming is used and a comprehensive auto-code is available. Time sharing can be used extensively, especially during input and output.

The fully transistorised 1301 operates at the very high pulse rate of 1 megacycle (one million cycles per second) and the wrapped connection technique of joining wires is used throughout. All the related equipment is entirely under the control of the programme, and neither costly buffers nor plug boards for the routeing of information are required. The basic computer can be accommodated in a room of 500 sq. ft. and imposes a maximum floor loading of 100 lb. sq. ft. It requires a three-phase mains supply with a range of 246 to 440 volts. Because of the use of transistors instead of valves, it dissipates only about 4 kW in heat, and special cooling arrangements or air conditioning are not normally required, although air conditioning is advisable when magnetic tape units are included in the system.



The I.C.T. 1301 electronic data-processing system in its comprehensive form: Extreme left, magnetic tape transporters; mid-left, output card punch (100 per minute); main block, left, high-speed card reader (600 per minute); middle, control console; right, high-speed output printer (600 lines per minute); rear, cabinets containing arithmetic and storage units

Data Storage

The word length is 12 decimal digits, alphabetical characters being represented by two digits. As stated above, the minimum immediate-access magnetic core store of 400 words can be increased to 2,000 in steps of 400. Each rotary magnetic drum holds 12,000 words in 60 peripheral channels each of 200 words, each channel being divided into 20 decades of 10 words. Transfers to or from the drum may be in either decades or channels, and any number of decades up to 20 can be transferred in one instruction.

The magnetic drum rotates at 5,240 r.p.m. and rapid average access time for a decade transfer is 5.7 milliseconds, to which must be added 0.57 milliseconds for the actual transfer. A channel transfer takes a maximum of 12 milliseconds. Decades and channels are numbered from zero upwards regardless of the number of drums, and transfers are not affected if a decade transfer should involve different drums. Besides the 12,000 words in 60 channels on each drum, two "reserve" channels of 200 words each are used to hold special programmes such as engineering test routines. Information can be read from these channels as from the others, but they are protected from being overwritten except during manual intervention by the test engineer.

Arithmetic Unit

The computer operates in a serial-parallel code. The fast arithmetic unit consists basically of three one-word registers—A, B and C—which are connected individually and through what is colloquially termed "the mill," in which all numeric processes take place. Register A is used as the link between the core store and the arithmetic unit, and it is also connected with the programme controller. Arithmetic and logical operations normally use Register B, which is also used for output to the printer and punch. Results of functions using Register B may either be left in Register B or placed in the core store. The programme is obeyed sequentially from the core store. One word normally holds two instructions, and as each word is transferred to the programme controller via Register A, the function of the more significant half of the word is obeyed, followed by the least significant half. The transfer of each pair of instructions from the programme controller takes 12 microseconds. Some typical times are listed below:

Addition—leaving result in Register B	21	microseconds
Addition—leaving result in core store	25	,,
Logical operation	21	,,
Test	12	,,
Multiplication	average 170 per digit in the multiplier	,,

The arithmetic unit will operate automatically in decimal or sterling, the pence position being variable within each individual word.

The newly designed card reader of the 1301 operates at a speed of 600 cards a minute; apart from the actual sensing unit, it consists only of a decoding device. Cards are fed endwise, face down, column 80 leading, and pass two sets of photo-electric cells (three columns apart) in moving from magazine to receiver. The magazine holds up to 2,000 cards. There are two receivers, one with a capacity of 2,000 cards and the other 500 cards, and the selection of receiver is under programme control. The first set of photo-electric cells encountered by the cards are the reading cells and the second set the check-reading cells. Register C is used as the input register and is loaded with the zone and numeric components of three columns from each set of cells. The comparison of readings from the two sensing stations is carried out by programme.

Line Printer

The line printer operates at speeds up to 600 lines a minute, there being 120 print positions per line and 50 characters per print position. Characters are spaced at 10 to the inch horizontally and six to the inch vertically. Each print position has its own "wheel" of 50 characters, and 120 of these wheels are bonded together to form a printing "barrel" which rotates continuously at 800 r.p.m. Printing is controlled entirely by programme, and pulses are sent to the required print positions as each character passes the hammers. These pulses are sent to the line printer direct from Register B, and a check is carried out by programme, and, by using indicators set by the printer, ensures that pulses have been sent at the correct time.

Paper throwing is also controlled by programme. When throwing at full speed the paper travels at 2.1 milliseconds per line. A sheet marker ensures the correct positioning of each new form to be printed. The printing speeds depend on the type of job being processed, but, as an example, direct listing from cards is carried out at 570 fully printed lines a minute.

Cards are punched at the rate of 100 a minute, pulses being sent from Register B to the punch knives in the same way as for the printer. The punching is read back into the computer by means of a reading station, and checking of the information actually punched against that giving rise to it is carried out by programme. The punch magazine holds 800 cards and the receiver 650. Cards may be offset in the receiver by programme.

Magnetic Tape

The magnetic tape facilities on the computer require the addition of a magnetic tape control unit and up to eight tape transports. There are two types available, high speed and standard. Although tape may be read and written simultaneously, only one operation of each kind can be carried out at the same time. Transfer of data from tape to core store and from core store to tape is effected by an automatic interrupt facility. As each word is read from the tape, the tape unit requires access to the computer, and the programme currently being obeyed is interrupted while this occurs. When writing, the programme is interrupted when a word is ready to be put on to tape. Each tape transport may be individually numbered for reference by the computer. A queueing system operates whereby, when processing a large file of data, any two successive reels of the file may be placed on two different transports; the transports are assigned the same number, and the "operate" button is pressed on each transport in the required sequence.

On starting the job, reel 1 will be processed and, as soon as the re-wind order is given for that reel, work will begin on reel 2. Thus, while reel 2 is being processed, reel 1 can be re-wound and replaced with reel 3. The reel length is 3,600 ft. and the block length is variable. When writing, informa-

(*Continued on page* 12)

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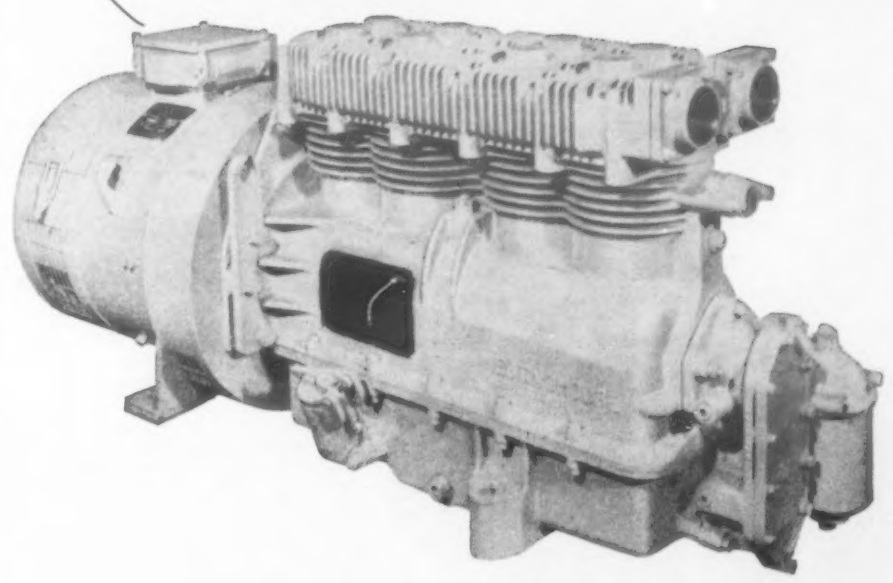
WESTINGHOUSE
'WESTEX'
Exhausters
have been sold since
their introduction
in 1949



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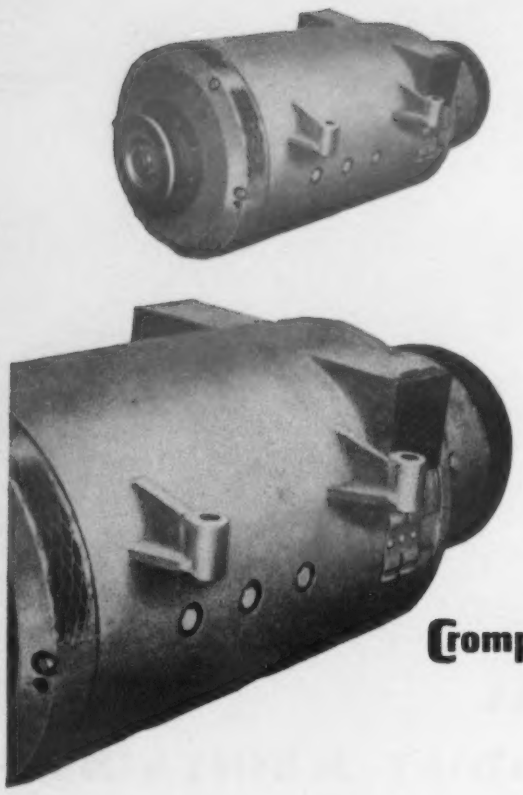
DESIGNING

AND MAKING
TRACTION EQUIPMENT



You, as an engineer, know that there can be no sharp dividing line between designing and building. A good design incorporates experience gained in making, testing and commissioning similar equipment in the past. And, of course, it is also shaped by the experience of all sorts of people using the earlier designs under a variety of conditions that could not be simulated in any test laboratory.

To a long-established company such as Crompton Parkinson this process of feedback of information to the designer is fundamental.

In traction equipment, where space and weight must be kept down, and yet robustness and accessibility are at a premium, it shows up in the simplicity and elegance with which these conflicting demands are reconciled. As for example, by the neat cylindrical frame of the latest trolleybus motor. In the design of these motors we were able to make direct use of the experience we had gained with earlier trolleybus motors as well as more indirectly from hundreds of other equipments built for main line locomotives, shunters and motor coaches.

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BRITISH COACH TRIUMPHS

At Nice Rally

THE Sheffield United Tours Plaxton-A.E.C. Reliance Panorama class coach won outright the International Coach Rally which ended in Nice last Friday. For the first time since the rally was instituted 12 years ago, the grand prix, a Sèvres vase, awarded by the French President to the coach gaining the most points in all sections of the three-day event, was won by a British coach. With the vase went the silver medal of the French Government Tourist Office. In addition to the lone British entrant, the rally attracted nearly 100 coaches from six European countries—France, Germany, Holland, Belgium, Italy and Switzerland.

At the prize-giving at the Nice Casino, the French Inspector-General of Tourism, Monsieur Guy Herpin, said "The decision that the British coach should have the premier award was the unanimous one of the judges." He immediately gave orders that the trophies won by the coach should be put on display in the windows of the French Government Information Offices in London's Haymarket. In addition to gaining the chief prize, the S.U.T. Plaxton Panorama carried off the magnificent cup

The A.E.C. Reliance of S.U.T. with Plaxton Panorama body undergoing headlamp tests

awarded by the French Federation of Coach Builders for elegance, comfort and observation. The Federation's bronze medal for seating and general safety also went to the British coach.

When told of his coach's success, Mr. Ben Goodfellow, general manager of Sheffield United Tours, commented: "I always knew the Panorama would be a world-beater. The hard work which my company and Plaxtons have put in on the coach in the last few years has been well worthwhile." Mr. Frank B. Ford, sales director of Plaxtons, who attended the rally, said: "This is a great honour for my company. It is a pity that neither Mr. Eric Plaxton nor Miss Gladys Plaxton—because of previous commitments—are able to be in Nice to hear the remarks of Monsieur Herpin." He added that already he had some inquiries from foreign operators attending the rally who were immensely interested in the Panorama bodywork.

The coach left Sheffield in the middle of May with a full complement of fare-paying passengers and ran to Nice via Dijon, Stresa and Turin to take part in technical trials and the concours d'elegance.

BUSINESS COMPUTER

(*Continued from page* 11)

tion put on to tape is immediately read back for checking. A system of checking ensures that when tape is read, any single bit error is automatically corrected and any double bit errors detected for each lateral position or "frame" across the tape. In the vast majority of instances there is no loss of time, and no programming effort is required. These conditions apply to both of the two alternative magnetic tape systems which can be used with the 1301. The high-speed tape gives 90,000 decimal digits a sec., and the standard 22,500.

Programming

A single address system of programming is used, with a comprehensive range of functions including some special functions connected with the input-output units. Two digits are used for the function and four for the address, thus two instructions may generally be held in each word. The exceptions are drum transfer and magnetic tape read-and-write instructions which are double length and occupy one word each. A large range of testable indicators are available, and these may be divided into four main groups:

(a) Those set by programme.
(b) Those set by manual switches on the control console.
(c) Those set to record the state of numbers leaving the arithmetic unit.
(d) Those set by various conditions in the related units.

With the 1301 the programmes are normally written in blocks, which are convenient sections of the whole routine. Each block is assigned a number which is used as a relative address. It is therefore easy for different programmers to write different sections of the routine, merely referring to data or instructions in another block by the appropriate relative address.

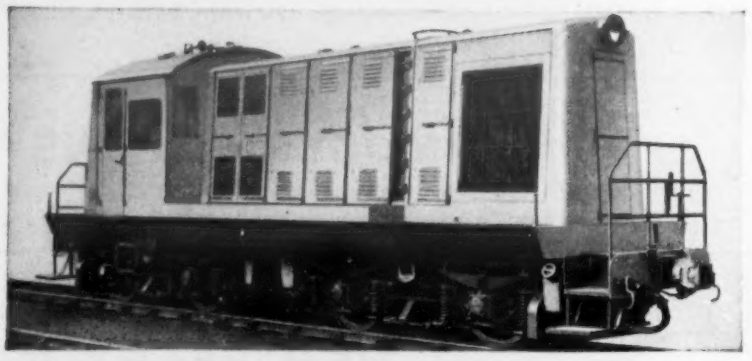
Using the High Speed

The various sections of programme, when completed, are punched into cards, as are the relative addresses. When all the cards have been punched the whole pack is fed into the machine, and, by means of a special programme stored on one of the reserve channels of the drum, all the relative addresses are translated into absolute addresses, the results are stored on the drum, and the computer is set ready to start obeying the programme. Because of the operating principle of the programme controller, the problem of incorporating a sub-routine in a main programme is very straightforward; the programme controller provides the link which will return control to the main programme either to the next instruction or to any other desired point.

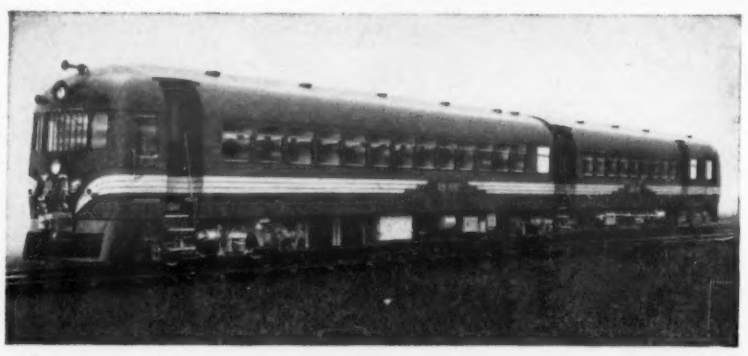
A large variety of sub-routines is available, including, in particular, programmes for operating the related equipment. By using the technique of time-sharing, the card reader, card punch, line printer, and magnetic tape units are made to operate simultaneously. Alternatively, the main programme may be time-shared with, for example, the operation of the printer and punch, or any other combination. This permits the high internal processing speed of the I.C.T. 1301 computer, which represents a triumph for the International Computers and Tabulators and General Electric sponsors, to be utilised at all times. An editorial note appears on page 1.

COMMONWEALTH RAILWAYS OF AUSTRALIA
955 H.P. Diesel-Electric Locomotive (10 Ton Axle Load)
In collaboration with Sulzer Bros. (London) Ltd and Crompton Parkinson Ltd.

BRITISH RAILWAYS
Three Unit Diesel Mechanical Railcars



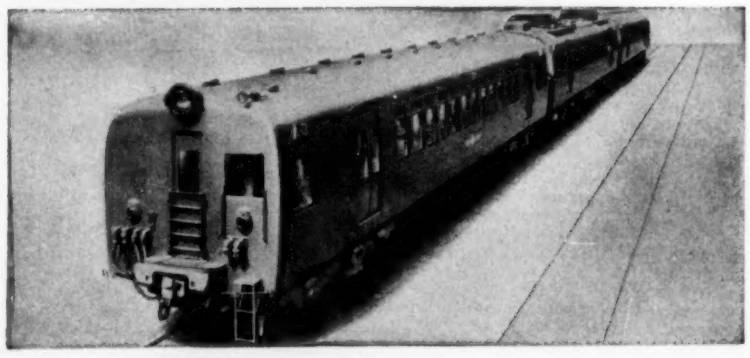
GHANA RAILWAYS
400 h.p. Diesel Electric Locomotive



NEW ZEALAND GOVERNMENT RAILWAYS
Twin Articulated Diesel Mechanical Railcars
In collaboration with The Drewry Car Co. Ltd

BRITISH RAILWAYS
1,160 H.P. Diesel-Electric Locomotive
In collaboration with Sulzer Bros. (London) Ltd and Crompton Parkinson Ltd

SANTOS JUNDIAI RAILWAY, BRAZIL
3,000 Volts, 800 H.P. Three Car Train
In collaboration with The English Electric Co. Ltd.



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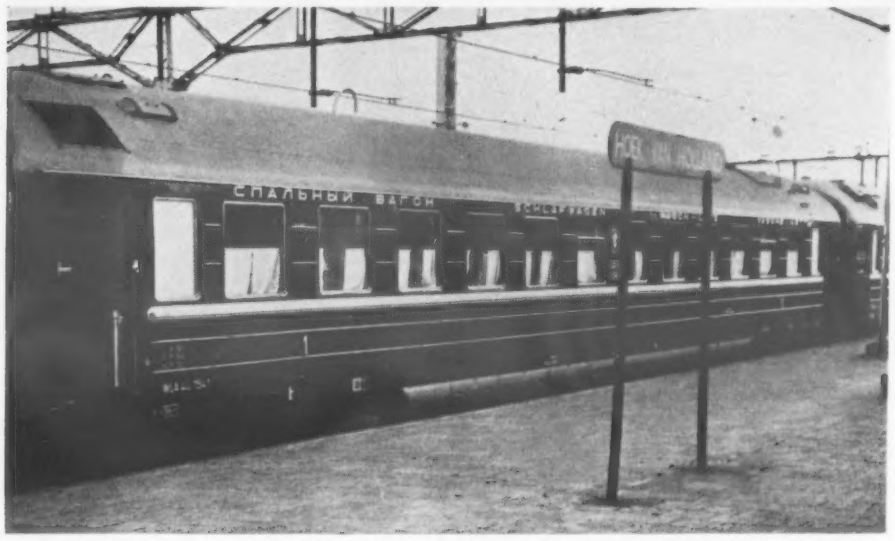
THROUGH CARRIAGES TO MOSCOW

Services from the Hook and Paris

THROUGH service for railway passengers between London (Liverpool Street) and Moscow via Harwich and the Hook of Holland and between Gare du Nord, Paris, and Moscow came into operation for the first time with the introduction of the Continental summer timetables on May 29. There are four services each way each week between London and Moscow and the Moscow—Paris service is daily.



One of the new U.S.S.R. sleeping cars for the through services between the Hook of Holland and Paris and Moscow

Passengers leave Liverpool Street by the 10.05 a.m. *Day Continental* train arriving at the Hook of Holland at 18.30 hr. By agreement between British Railways, the Zeeland Steamship Company, and the railway administrations of the Netherlands, Federal Germany, East Germany, Poland and the Union of Soviet Socialist Republics, a first-class sleeping car composed of two-berth compartments will leave the Hook of Holland on Tuesdays, Wednesdays, Fridays and Sundays reaching Moscow at 21.30 hr. (local time) two days afterwards. The route after passing through Holland is via Osnabrück, Hanover, Berlin, Frankfurt on Oder, Terespol, Brest-Litovsk, Minsk and Smolensk. At Brest-Litovsk, the frontier station, the carriage bogies are changed because of the wider Russian gauge. In the reverse direction, the departure from Moscow is at 12.30 hr. on Mondays, Wednesdays, Fridays and Sundays, also connecting with the Hook of Holland day service giving arrival at Liverpool Street Station at 20.36 hr. taking approximately the same total time for the journey.

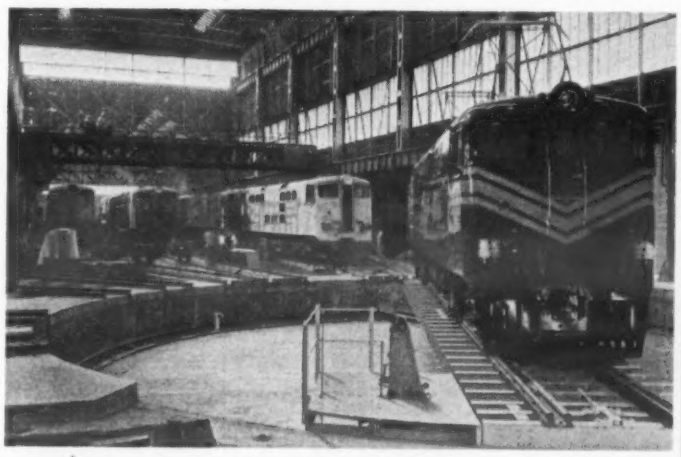
The first-class sleeping cars for both services are owned by the U.S.S.R. Railways. They are of the recognised international design and the degree of comfort is equal to that of the sleepers used in many other international services. The upper and lower berths are equipped with full bedding and each compartment has its own washing facilities. The exclusive use of a compartment by one passenger is possible on payment of a higher charge. Restaurant cars are available for the service of meals at the appropriate times. The throughout first-class return fare London—Moscow by this service including sleeper accommodation, but excluding meals, is £69 18s.

Electric Locomotives

FOR SOUTH AFRICAN RAILWAYS

THERE has just been completed by Metropolitan-Cammell Carriage and Wagon Co., Limited, Saltley, Birmingham, the first of 35 electric locomotives for the South African Railways. The Old Park Works at Wednesbury has been responsible for the manufacture of these Type 5E1 locomotives and they are the first all-electric units to be built by Metro-Cammell.

The main contractor—Associated Electrical Industries Export, Limited—was awarded a contract for 135 of this class of locomotive, 35 of which were sub-contracted to Metro-Cammell in May, 1959. The shipment of this first locomotive is being made in accordance with the contract date, May, 1960, and the order for 35 is due for completion in February, 1961. These are the first locomotives to be manufactured in Wednesbury and it is hoped they will be followed with other orders for both home and overseas railways.



In the shops at the Wednesbury works of the Metropolitan-Cammell Carriage and Wagon Co., Limited, showing a batch of 35 A.E.I. 3,000-volt electric locomotives of Class 5E1 in course of construction for the South African Railways and Harbours

The total weight of each 3 ft. 6 in. gauge unit is 85 tons; the voltage is 3,000 d.c.; and approximately 2,200 h.p. is developed. The South African Railways has always been a traditional market for Metro-Cammell and large quantities of carriages and many thousands of wagons have been delivered to South Africa over the years. The company is proud now to be delivering electric locomotives to the undertaking in its centenary year. The most recent South African Railways Metro-Cammell contract to be completed was for 349 electric suburban coaches for the Reef services in Johannesburg; these vehicles were built at the company's Midland Works, Washwood Heath, Birmingham.

125 Years

NOTABLE ANNIVERSARY OF SULZER BROTHERS

MARKING the 125th anniversary last year of its founding in Switzerland, the firm of Sulzer Brothers, Limited, has recently published a book, *Sulzer 1834-1959*, commemorating its many notable engineering achievements and outlining the scope of present activities of the parent and associated companies. The history of the Sulzer company started in 1834, when the two brothers Johann Jakob and Salomon Sulzer, with their father's assistance, opened a new iron foundry on the site the company still occupies at Winterthur. The timing was propitious, for cast iron was just beginning to replace brass in many branches of engineering and the Sulzer brothers had had the benefit of a sound and cosmopolitan training in casting and metalworking. An engineering works was soon added to the foundry, which was itself enlarged to meet rising demand within a few years, and during the ensuing few decades Sulzer products earned for the company an enduring reputation in the field of heavy engineering.

In 1841, production of the first Sulzer steam boiler ushered in the long succession of successful thermal plant and heat engines, highlights of which have been the first Sulzer steam engine in 1854, steam turbines in 1903 and the Monotube steam generator in 1932. But for present-day transport men, the name of Sulzer is perhaps most closely associated with diesel engines, in the development of which the company had the great advantage of having employed young Rudolf Diesel as a trainee at Winterthur and later engaged with him to co-operate in the actual development of his "practical heat engine," the theory of which Diesel propounded in 1893.

Marine Propulsion

Manufacture of the Diesel engine was taken up at Winterthur in 1903, after lengthy experimental work. Soon at odds with the limitations of the early heavy four-stroke units, which many engineers thought had reached the end of practical development with about 1,000 h.p. from four cylinders, and anxious to make worthwhile contribution in the way of much better specific output of the diesel, Sulzer Brothers adopted the two-stroke cycle and attracted great interest to its first directly reversible two-stroke marine diesel when it was exhibited at Milan in 1906. The elegant Sulzer after-charging system replaced the earlier rather complicated valve scavenging in 1910.

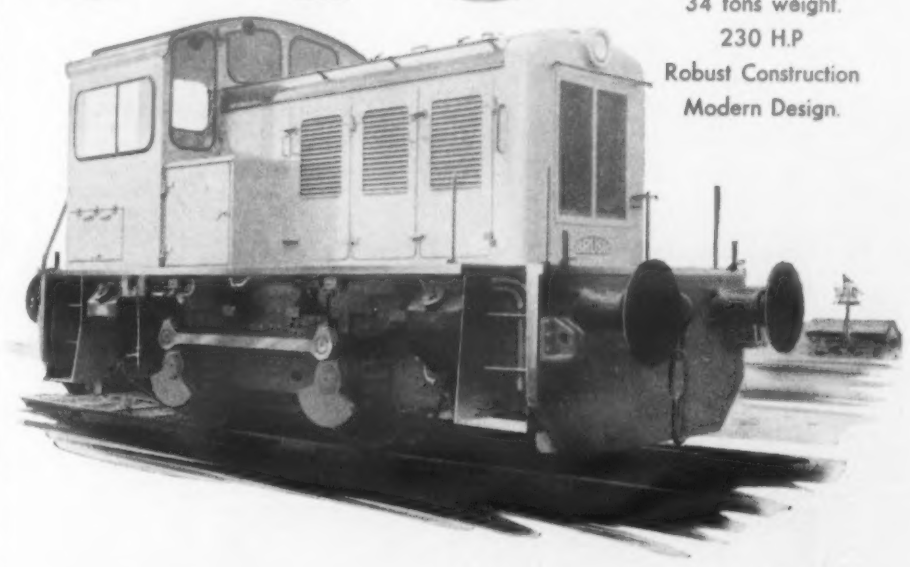
(*Continued on page* 14)

BRUSH again!

The **Park Gate Iron & Steel Co. Ltd.**
has selected Brush shunting locomotives for its new fleet. Twelve will be supplied to an arranged delivery schedule

0-4-0 SHUNTER

34 tons weight.
230 H.P
Robust Construction
Modern Design.



BRUSH TRACTION DIVISION

BRUSH ELECTRICAL ENGINEERING CO. LTD. LOUGHBOROUGH, ENGLAND (*Member of the Hawker Siddeley Group*)
BT 10

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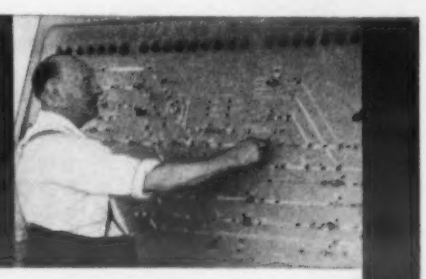

Elsburg, South African Railways with provision for extensions

Sittingbourne, B.R. Southern Reg.

Huddersfield B.R.Nth. Eastern Reg.

Rainham, B.R. Southern Reg.

Rochester, B.R. Southern Reg.

RELAY INTERLOCKING CONTROL SYSTEMS

As pioneers in Relay Interlocking Control (first installation at Thirsk on the York-Northallerton line in 1935) S.G.E. remain in the forefront in this form of signalling control which has superseded the mechanical or electro-mechanical systems formerly used.
In the comprehensive range of S.G.E. control systems there is a design to meet every requirement, including miniature type panels if specified. Panels can either be fully equipped with keys, signal and point indications or associated with a separate console.

THE SIEMENS AND GENERAL ELECTRIC RAILWAY SIGNAL COMPANY LTD., EAST LANE, WEMBLEY

IMPORTANT CONTRACTS

More Comet Air Liners for B.E.A.

SUBJECT to Treasury approval, British European Airways has placed an order for two more de Havilland Comet 4B jet air liners (Rolls-Royce Avon engines), with a further option, thus increasing its total firm order from seven to nine aircraft. This news comes shortly after the announcement that £500,000 was earned for B.E.A. in the first six weeks by the comparatively small Comet fleet operating from April 1, in which period the aircraft flew 1,000 hours and 15 million passenger-miles. B.E.A. first ordered six Comets in September, 1957. In August, 1959, the order was increased to seven. Six aircraft have so far been delivered, the seventh will be delivered in August and the eighth and ninth by March, 1961, less than a year from the placing of the new order. The total of Series 4 Comets now delivered or on order is brought to 50.

Engine Test Plant for Ghana

The United Africa Company has placed an order with Heenan and Froude, Limited, for an engine test plant for the company's vehicle repair shops in Ghana. The plant includes a Froude dynamometer capable of absorbing up to 650 b.h.p. at 3,500 r.p.m., a Heenan water cooler for cooling both engine jackets and the dynamometer and a universal engine cradle and cardan shaft.

Dexion in Railway Transport

Maximum loading of boats in railway wagons is achieved in Canada by the use of frameworks made of Dexion slotted angle, which can be adjusted to accommodate boats of various sizes. After removal of the boats, the Dexion can be repacked into small bundles for return and re-use. The system has been developed by Dexion (Canada), Limited, with the approval of Canadian Pacific and Canadian National railways.

Leylands for High Altitudes

Repeat orders have been placed with Leyland Motors, Limited, by two transport undertakings in Bolivia as a result of the successful operation of similar vehicles in that country at heights of up to 14,000 ft. The new orders, worth £90,000, are for 15 Super Beaver chassis for Co-operative de Transportes Catavi and 14 Super Comets and four Super Beavers for Co-operative de Transportes Chaco. All are standard products tuned to operate with up to 16-ton payloads at altitudes up to 12,000 ft. The orders were placed by Mr. Roberto Oblitas-Stewart, president and general manager of Commercial Industrial Boliviana, S.A., who visited Leyland factories in England recently.

Portuguese Bridge Contract

A contract for the new bridge over the River Tagus at Lisbon, valued at £22 million, has been awarded provisionally to the United States Steel Export Company, in collaboration with three other American and Portuguese and French firms. Award of the contract has probably been influenced by finance (American and French loans have been arranged) as other tenders, including that of Dorman Long, are said to have been lower.

London Midland Region Contracts

The London Midland Region of British Railways announces the following contracts in connection with modernisation and electrification schemes:

The Norwest Construction Co., Limited, Liverpool, 10, for new footbridge, pavings and drainage at Huskisson goods depot, Liverpool.

The Cubar Construction Co., Limited, Manchester, 2, for demolition of station buildings and erection of temporary station at Stafford.

Harbour and General Works, Limited, London, S.W.1, for lightweight and main-line diesel shed at Cricklewood.

Kyle Stewart (Contractors), Limited, Wembley Park, for new diesel maintenance depot at Marylebone.

Wilson Lovatt and Sons, Limited, Wolverhampton, for a new viaduct, new bridges, widening existing bridges, earthworks, drainage, roadworks and other ancillary works near Rugby Midland Station.

Head Wrighton Teesdale, Limited, Thornaby-on-Tees, for steelwork and precast concrete deck units for intersection bridge on Trent Valley line.

North Eastern Region Contracts

Recent contracts placed by the North Eastern Region of British Railways include:

Mitchell Construction Co., Limited, Peterborough, for construction of four bridges in connection with the new marshalling yard at Lamesley.

James Austin and Sons, Limited, Dewsbury, for steelwork for Cinder Lane Bridge, York.

Steels Engineering Products, Limited, Sunderland, for conversion to Magnet operation of a Coles crane and for the supply and erection of oil storage at Neville Hill motive power depot.

Associated Electrical Industries, Limited, Woolwich, for test selecting and balancing telephone cables between Darlington and Middlesbrough.

Kenyon Pumps, Limited, Nottingham, for two air compressor installations for use at Newcastle and Gateshead signalboxes.

Wakefield-Dick Industrial Oils, Limited, London, N.W.1, for radiator drain refill units and topping up stillages at Greensfield, Gateshead and York motive power depots.

H. W. Ward and Co., Limited, Birmingham, for one capstan lathe and equipment for the locomotive carriage and wagon development unit, Darlington.

SHIPPING AND SHIPBUILDING

Old Tonnage Must Go

THERE was no future in owners hanging on to old tonnage, said Sir Nicholas Cayzer, chairman of the British Commonwealth Shipping Co., Limited, at Greenock, last week. He thought the days of some of the older tonnage were finished. Empire, Ocean, Liberty and other war-built tonnage had had their day. We had got to get the latest types of ship if we were to compete with the new fleets of countries who had recently shown a desire to own their own merchant fleets.

There had been one or two mildly encouraging signs in shipping recently. The fall in laid-up tonnage from around nine million to five and a half million tons had been contributed to by scrapping and the fact that shipowners were building fewer ships at present. The shipbuilder, he said, was having a fairly hard time, but he had had quite a good time for a decade after the war, and in those good times it was impossible to get fixed prices and fixed dates for delivery. The situation had changed very much today. Orders were scarce and that called for highly competitive prices. This change was essential, he said, if we were to survive in a very competitive world. A great many people were becoming shipowners and doing everything they could to seize cargo from the British fleet.

Modernisation at Belfast

NEWS of a major modernisation programme was recently given by Sir Frederick Rebbeck, chairman and managing director of Harland and Wolff, Limited. Work has commenced on the reorganisation and improvement of certain of the larger slipways which would increase the capacity of the cranes and would extend existing welding facilities with a material improvement in capacity and efficiency.

For Pacific Tourists

IN North America P. and O. and Orient Lines (who have been trading until the recent merger of the P. and O. Company and the Orient Line under the name of Orient and Pacific Lines) have issued this month from their office in San Francisco the first issue of a new quarterly publication describing their activities and services in the Pacific under the name of *POSH* (a reference to the early term "port out, starboard home"). It features the various tourist attractions available to Americans and Canadians in the vast arena of tourist opportunities now open, as a result of the many new passenger liner services being offered connecting San Francisco, Los Angeles, and Vancouver with such places as Honolulu, Suva, Auckland, Sydney, Manila, Hong Kong, Kobe and Yokohama.

Japan—Australian Service

ROYAL INTEROCEAN LINES, Netherlands-owned, has announced that it would inaugurate a fast passenger and freight service between Japan and east Australia. Two modern air-conditioned passenger liners, the *Tjiwangi* and the *Tjiluwah*, will be used on the service. The route will start from Melbourne and call at Sydney, Brisbane, Yokkaichi, and Yokohama and Kobe, returning via Hong Kong to Sydney and Melbourne. The first sailing is scheduled from Melbourne at the end of July.

Port Authority for Colombo?

THE general manager of the Colombo Port Cargo Corporation, Mr. C. Mylvaganam, has recommended to the government that the port of Colombo should be administered by a port authority. This is the basic proposal made by Mr. Mylvaganam in a report he has prepared following his visit to Singapore recently, suggesting effective measures to combat the increasing incidence of pilferage, theft and petty smuggling in the port. His concept of a port authority for Colombo is based on the framework of the Port of London Authority and the Singapore Harbour Board. It envisages the merging into one single unit of the three main port services—the Customs, the Port Commission and the Port Cargo Corporation under the direct control of one authority.

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FINANCIAL RESULTS

NOTES on the trading results, dividends and financial provisions of companies associated with the transport industry are contained in this feature, together with details of share issues, acquisitions and company formations or reorganisations.

Ribble Motor Services

Ribble Motor Services, Limited, is paying a final dividend of 6 per cent, making 10 per cent, for the year ended March 31, 1960 (same). Group net profit £362,862 (£286,265), after tax £294,706 (£273,582). To general reserve £125,000 (£53,710). Forward £250,989 (£224,803).

Henry Simon (Holdings)

The scheme for the merger of Henry Simon (Holdings), Limited, and Simon-Carves, Limited, has now been finalised. Henry Simon and Simon-Carves are the parents of a number of engineering companies known as the Simon Engineering Group and Henry Simon has an interest in the Simon-Carves equity. The terms of the merger provides for the creation of a new holding company.

Cape Asbestos

Net profit of the Cape Asbestos group for 1959 after taxation was a record £944,068 (£754,266). Dividend is 20 per cent. Sales of Rocksil rock wool, Asbestolux asbestos insulation board, Uxbridge flint bricks and Marinite asbestos sheet were each records. The Weaver Manufacturing and Engineering Co., Limited, a Cape Asbestos subsidiary manufacturing garage equipment and steam cleaners, also had a record year.

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FORTHCOMING EVENTS

June 4-5.—H.C.V.C. Fourth rally. At Beaulieu.
June 4-6.—L.R.T.L. Annual convention. At Bruhl.
June 7-11.—L.R.T.L. Visits to Ruhr tramways systems.
June 12.—S.C.T.S. Coach and Rail Tour of East Kent.
O.S. Visit to West Hartlepool Corporation Transport.
O.S. Tour of West Riding.
June 15.—Inst.C.E. Conversazione. Great George Street, S.W.1. 7.30 p.m.
June 23.—I.E.E. Conversazione. Royal Festival Hall, S.E.1.
June 25-July 8.—Machine Tool Exhibition 1960. Olympia.
September 5-11.—Society of British Aircraft Constructors. Farnborough Show. (Public days, September 9, 10, 11).
September 12-16.—Municipal Passenger Transport Association. Conference at Douglas, I.o.M.
September 23—October 1.—Commercial Motor Show. Earl's Court, S.W.14.

KEY TO CODE

A.D.A.—Aluminium Development Association; A.F.—Aviation Forum; B.I.R.E.—British Institution of Radio Engineers; D.E.U.A.—Diesel Engineers and Users Association; E.R.S.—Electric Railway Society; H.C.V.C.—Historic Commercial Vehicle Club; Inst.C.E.—Institution of Civil Engineers; I.E.E.—Institution of Electrical Engineers; I.N.A.—Institution of Naval Architects; I.R.S.E.—Institution of Railway Signal Engineers; I.R.T.E.—Institute of Road Transport Engineers; I.T.A.—Industrial Transport Association; I.Loco.E.—Institution of Locomotive Engineers; I.Mar.E.—Institute of Marine Engineers; I.Mech.E.—Institution of Mechanical Engineers; I.Nav.—Institute of Navigation; Inst.H.E.—Institution of Highway Engineers; Inst.P.—Institute of Petroleum; Inst.T.—Institute of Transport; Inst.Traf.A.—Institute of Traffic Administration. L.M.R.L.D.S.—London Midland Region Lecture and Debating Society; L.R.T.L.—Light Railway Transport League; N.T.M.R.C.—Norbury Transport and Model Railway Club; O.S.—Omnibus Society; P.R.D.G.—Peterborough Railway Discussion Group; P.V.O.A.—Passenger Vehicle Operators Association; P.W.I.—Permanent Way Institution; R.Ae.S.—Royal Aeronautical Society; R.C.H.S.—Railway and Canal Historical Society; R.C.T.S.—Railway Correspondence and Travel Society; R.H.A.—Road Haulage Association; R.S.A.—Royal Society of Arts; Rly.C.—Railway Club; Rly.E.C.—Railway Enthusiasts Club; Rly.S.A.—Railway Students Association; S.C.T.S.—Southern Counties Touring Society; S.E.—Society of Engineers; S.L.S.—Stephenson Locomotive Society; S.R.L.D.S.—Southern Region Lecture and Debating Society; S. Wales and Mon. R.D.L.D.S.—South Wales and Mon. Railway and Docks Lecture and Debating Society; T.R.T.A.—Traders Road Transport Association; W.R.L.L.D.S.—Western Region London Lecture and Debating Society; W.W.R.T.S.—West Warwickshire Railway and Travel Society.

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SULZER ANNIVERSARY

(*Continued from page* 13)

coupled with spray cooling of the pistons, and the way was open for big increases in total and specific power, leading eventually to the cross scavenging and exhaust-gas turbocharging of more modern times and outputs of well over 10,000 h.p. from single units.

The name of Sulzer is also connected with pioneering work in the application of the diesel engine to railway traction and produced the 1,000-h.p. power unit for the world's first diesel locomotive in 1912. In 1914 Sulzer-powered diesel-electric railcars were commissioned in Germany, followed in the early 1920s by Sulzer railcars for Switzerland, while two 4,400-h.p. diesel-electric locomotives built for the French and Rumanian railways in 1938 were at the time the most powerful in the world. Deservedly, an impressive number of Sulzer diesel engines have been or are being specified by railway operators in many parts of the world, including 603 units for British Railways and over 300 for the French S.N.C.F. in recent years.

Sulzer interests do not lie exclusively in transport and stationary power plant (to which gas turbines were added in 1947) but extend to many branches of the engineering industry. Current products include refrigeration and quick-freezing plant, heating and air-conditioning installations, hydraulic machinery and plants, gas-handling machinery, weaving machines and process-engineering plants.

SOCIAL AND PERSONAL

The late Mr. J. N. Maskelyne

WE deeply regret to record the death of Mr. James Nevil Maskelyne, at the age of 68. Known to railway enthusiasts all over the world for his encyclopaedic knowledge of steam locomotive history and particularly of minor features and precise details of livery of past locomotives, he was an expert maker of models and in great demand as a judge in competitions. He was editor of *Model Railway News* and technical editor of *Model Engineer* from 1934 to 1957. He was a member of the famous family of illusionists and his earliest essays in model building were with miniatures of stage sets for the devising of new acts in conjunction with his grandfather, John Nevil Maskelyne. J. N. Maskelyne's delightful drawings of locomotives, recently exemplified in his *Locomotives I Have Known*, will always remain a memorial to his genius.

* * *

The Railway Benevolent Institution informs us that its annual flag day has been postponed until July 15.

* * *

Mr. Lincoln Steel has been elected to the board of Triplex Holdings, Limited, of which he was at the same time appointed deputy chairman.

* * *

Mr. A. M. Champion, M.B.E., has been appointed manager of the vehicle engine sales branch of F. Perkins, Limited.

* * *

Mr. Lionel G. Stockwell, managing director of Hernu, Peron and Stockwell, Limited, the shipping and forwarding agent, retired on May 31, after completing 47 years with the firm. Mr. Stockwell joined his father in the family business of Stockwell and Co., Limited, in 1913 and his retirement ends the family connection of three generations. He is recognised as an authority on shipping and forwarding matters. He is a fellow of the Institute of Shipping and Forward-Agents, serving on the national council of the Institute from 1952 to 1954. Hernu, Peron and Stockwell has been part of the Thos. Cook group since January 1, 1948, having originally been acquired by Carter Paterson in January, 1946.

Mr. L. G. Stockwell

* * *

Mr. S. Ferry, M.B.E., traffic manager, Trent Motor Traction Co., Limited, will be retiring from the service on September 30. Mr. Ferry joined Trent Motor Traction in 1920 as assistant to the general manager.

* * *

Mr. R. W. Thornton, B.Sc., Grad.I.Mech.E., previously sales engineer of the industrial units division, has now been appointed sales engineer of Leyland Motors, Limited. He joined the company in 1946 as a trade apprentice.

* * *

Air Vice Marshal Sir Laurence Sinclair, G.C., K.C.B., C.B.E., D.S.O., has been appointed Controller of Ground Services in the Ministry of Aviation, in succession to Mr. E. A. Armstrong, C.B., C.B.E., who is retiring from the public service.

* * *

Mr. Walter F. French, managing director of United Service Transport Co., Limited, who was chairman of P.S.V. Operators, Limited, the London independent coach travel organisation, has relinquished that post in favour of Mr. F. J. Speight, of George Ewer and Co., Limited. Mr. French had been chairman since the inception of P.S.V. Operators in 1932.

British Aircraft Group

THE following are the new chairmen and boards of the underlying companies of the British Aircraft Corporation, Limited, the formation of which was referred to in our last issue:

Vickers-Armstrongs, Limited: Mr. A. O. Bluth, Sir George Edwards and Mr. T. Gammon will resign from the board. Mr. Bluth and Sir George, who are directors of Vickers, will retain their seats on the board of that company.

Vickers-Armstrongs (South Marston), Limited: The board will be: Mr. W. D. Opher, chairman; Mr. S. P. Woodley, general manager; and Mr. J. H. Robbie. [The South Marston works of Vickers-Armstrongs (Aircraft) have been excluded from the merger and this new company has been formed to operate them.]

Vickers (Aviation), Limited: The board will be: Mr. R. P. H. Yapp, chairman: Mr. N. H. Jackson, Mr. J. H. Robbie and Sir Leslie Rowan.

Vickers-Armstrongs (Aircraft), Limited: The board will be: Major-General Sir Charles Dunphie, chairman; Sir George Edwards, managing director; Mr. T. Gammon, deputy managing director; Mr. A. W. E. Houghton, general manager; Mr. J. E. Armitage, commercial director; Mr. H. H. Gardner, technical director; Mr. A. H. C. Greenwood, director (sales and service); Mr. G. F. H. Hemsley, chief engineer (aircraft); and Mr. B. Stephenson, director of engineering.

English Electric Aviation, Limited: Lord Nelson of Stafford, Sir Archibald Forbes and Sir John Woods retire from the board. Mr. H. G. Nelson is chairman of the reconstituted board. Sir Conrad Collier retires from the position of chief executive, guided weapons division and also from the board. Viscount Caldecote, formerly deputy managing director, becomes managing director, in which capacity he will also act as chief executive, guided weapons division.

The following are appointed new directors of English Electric Aviation: Mr. L. H. Bedford, director of engineering, guided weapons division; Mr. R. F. Creasey, director of engineering, aircraft division; Air Commodore S. Graham, commercial director, aircraft division; Mr. G. R. Jefferson, chief engineer, guided weapons division; and Mr. A. T. Slator, manager, guided weapons division. Mr. F. W. Page is chief executive, aircraft division, in addition to being on the board, and Wing Commander R. P. Beamont, manager flight operations and chief test pilot, is appointed a special director.

* * *

Mr. G. E. Curtis, district goods manager, Broad Street, London Midland Region, B.R., has retired.

* * *

Mr. E. L. Bass, chief engineer of the Shell Aviation Division in London, is retiring after 43 years' service with the Royal Dutch—Shell Group of Companies. A mechanical engineer with an exceptionally wide knowledge of internal combustion engines and aeronautical engineering, Mr. Bass achieved an international reputation in aviation during his service with the group.

Sir James Farquharson, general manager of East African Railways and Harbours, receives the K.B.E., awarded him in the New Year Honours List, from the Governor of Kenya, Sir Patrick Renison

Lord Merrivale of Walkhampton has been re-elected president of the Institute of Traffic Administration and the new chairman of the national council is Mr. W. Lindley (Frames Tours, Limited). The vice-chairmen are Mr. K. J. P. Bowyer (Bowyer Plant Hire and Transport, Limited) and Mr. W. C. Dale (Reed Transport, Limited).

* * *

At the annual general meeting of the Industrial Transport Association on May 28, the following were elected: President, Sir W. W. Wakefield; vice-presidents, Messrs. A. L. Bagley, J. J. Brown, W. G. Gee, A. A. Hart, L. J. Hopkins, F. H. Wells and W. G. Widnall; chairman, Mr. C. A. Elliott; vice-chairmen, Messrs. G. L. Eades and C. N. J. Graddon.

At the presentation to Sir Reginald Wilson by members of the Eastern Area Board to mark the end of his five-year term as chairman. He has since become chairman of the London Midland Area Board

Left to right (standing): Messrs. H. C. Johnson (general manager, Eastern Region), Alastair MacLeod (member, Eastern Area Board), G. A. V. Hayes (secretary, Eastern Area Board), J. B. Peile (member, Eastern Area Board), Norman Hamilton (adviser on public relations) and A. K. Terris (chief civil engineer, Eastern Region). Seated: Sir Henry Willink (member, Eastern Area Board), Sir Reginald Wilson, Major-General G. N. Russell (chairman, Eastern Area Board), Messrs. Jack Tanner (member, Eastern Area Board) and A. F. Pegler (member, Eastern Area Board)

Mr. D. Currie has been appointed production engineering manager at Chrysler Motors, Limited, Kew. He will be responsible for co-ordinating, developing and administrating the functions of the planning and maintenance departments of both Chrysler and Dodge Brothers (Britain), Limited.

* * *

The results of the Institute of British Carriage and Automobile Manufacturers 1960 drawing and handicraft competition have been announced. First prize (£90, medal and certificate, and visit to a Continental motor show) goes to Mr. J. A. Lowrie, Stapleford, Nottingham (Nottingham City Transport), in the competition for a rear-engined single- or double-deck bus or single-deck coach. His design was for a double-deck airport coach. The runner-up is Mr. A. Chamberlain, of Wembley Park, for a single-deck coach, and the third prize goes to Mr. W. R. Almond, Birmingham (M.C.C.W., Elmdon), for a double-deck bus. The first prize for a three-man driver's cab for trans-continental operation, with sleeping berth, for a tractor chassis, was not awarded; the second prize (£40 and certificate) goes to Mr. S. R. Jackson, Southall (Mickleover Transport, Limited).

The engineering group of the General Electric Co., Limited, announces the appointment of Mr. E. W. Molesworth as chief engineer for the London, Southern and Eastern areas.

* * *

The Liverpool Cart and Motor Owners' Association is the only unit in the R.H.A. which retains its original identity and its own funds. This point was made by Mr. R. S. Harrison, immediate past-president of the Association, when he was presented with a wrist watch from the members on May 24 in recognition of his services during his period of office.

* * *

A reception was given on Friday of last week at the head office of the Port of London Authority for the members of the International Conference on Safety of Life at Sea who are now meeting in London. The delegates were received by Viscount Simon, Viscountess Simon, and by Lord Cottesloe, deputy chairman. Also present were members of the Authority and Sir Leslie Ford, general manager, Mr. G. A. Wilson, chief engineer, together with a wide cross-section of representatives of administrative, civic and shipping circles.

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BERmondsey 4533

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10 Dumfries Place
CARDIFF 21631

SWANSEA
Exchange Buildings
SWANSEA 56171/5

GLASGOW
12 Dixon Street, C.2
CITY 3361

LIVERPOOL
11 Old Hall Street, Liverpool, 3
CENTRAL 6386

NOTTINGHAM
Pavilion Building, Pavilion Road, West Bridgford
NOTTINGHAM 83481

IMPORTANT CONTRACTS

More Comet Air Liners for B.E.A.

SUBJECT to Treasury approval, British European Airways has placed an order for two more de Havilland Comet 4B jet air liners (Rolls-Royce Avon engines), with a further option, thus increasing its total firm order from seven to nine aircraft. This news comes shortly after the announcement that £500,000 was earned for B.E.A. in the first six weeks by the comparatively small Comet fleet operating from April 1, in which period the aircraft flew 1,000 hours and 15 million passenger-miles. B.E.A. first ordered six Comets in September, 1957. In August, 1959, the order was increased to seven. Six aircraft have so far been delivered, the seventh will be delivered in August and the eighth and ninth by March, 1961, less than a year from the placing of the new order. The total of Series 4 Comets now delivered or on order is brought to 50.

Engine Test Plant for Ghana

The United Africa Company has placed an order with Heenan and Froude, Limited, for an engine test plant for the company's vehicle repair shops in Ghana. The plant includes a Froude dynamometer capable of absorbing up to 650 b.h.p. at 3,500 r.p.m., a Heenan water cooler for cooling both engine jackets and the dynamometer and a universal engine cradle and cardan shaft.

Dexion in Railway Transport

Maximum loading of boats in railway wagons is achieved in Canada by the use of frameworks made of Dexion slotted angle, which can be adjusted to accommodate boats of various sizes. After removal of the boats, the Dexion can be repacked into small bundles for return and re-use. The system has been developed by Dexion (Canada), Limited, with the approval of Canadian Pacific and Canadian National railways.

Leylands for High Altitudes

Repeat orders have been placed with Leyland Motors, Limited, by two transport undertakings in Bolivia as a result of the successful operation of similar vehicles in that country at heights of up to 14,000 ft. The new orders, worth £90,000, are for 13 Super Beaver chassis for Co-operative de Transportes Catavi and 14 Super Comets and four Super Beavers for Co-operative de Transportes Chaco. All are standard products tuned to operate with up to 16-ton payloads at altitudes up to 12,000 ft. The orders were placed by Mr. Roberto Oblitas-Stewart, president and general manager of Commercial Industrial Boliviana, S.A., who visited Leyland factories in England recently.

Portuguese Bridge Contract

A contract for the new bridge over the River Tagus at Lisbon, valued at £22 million, has been awarded provisionally to the United States Steel Export Company, in collaboration with three other American and Portuguese and French firms. Award of the contract has probably been influenced by finance (American and French loans have been arranged) as other tenders, including that of Dorman Long, are said to have been lower.

London Midland Region Contracts

The London Midland Region of British Railways announces the following contracts in connection with modernisation and electrification schemes:

The Norwest Construction Co., Limited, Liverpool, 10, for new footbridge, pavings and drainage at Huskisson goods depot, Liverpool.

The Cubar Construction Co., Limited, Manchester, 2, for demolition of station buildings and erection of temporary station at Stafford.

Harbour and General Works, Limited, London, S.W.1, for lightweight and main-line diesel shed at Cricklewood.

Kyle Stewart (Contractors), Limited, Wembley Park, for new diesel maintenance depot at Marylebone.

Wilson Lovatt and Sons, Limited, Wolverhampton, for a new viaduct, new bridges, widening existing bridges, earthworks, drainage, roadworks and other ancillary works near Rugby Midland Station.

Head Wrighton Teesdale, Limited, Thornaby-on-Tees, for steelwork and precast concrete deck units for intersection bridge on Trent Valley line.

North Eastern Region Contracts

Recent contracts placed by the North Eastern Region of British Railways include:

Mitchell Construction Co., Limited, Peterborough, for construction of four bridges in connection with the new marshalling yard at Lamesley.

James Austin and Sons, Limited, Dewsbury, for steelwork for Cinder Lane Bridge, York.

Steels Engineering Products, Limited, Sunderland, for conversion to Magnet operation of a Coles crane and for the supply and erection of oil storage at Neville Hill motive power depot.

Associated Electrical Industries, Limited, Woolwich, for test selecting and balancing telephone cables between Darlington and Middlesbrough.

Kenyon Pumps, Limited, Nottingham, for two air compressor installations for use at Newcastle and Gateshead signalboxes.

Wakefield-Dick Industrial Oils, Limited, London, N.W.1, for radiator drain refill units and topping up stillages at Greensfield, Gateshead and York motive power depots.

H. W. Ward and Co., Limited, Birmingham, for one capstan lathe and equipment for the locomotive carriage and wagon development unit, Darlington.

SHIPPING AND SHIPBUILDING

Old Tonnage Must Go

THERE was no future in owners hanging on to old tonnage, said Sir Nicholas Cayzer, chairman of the British Commonwealth Shipping Co., Limited, at Greenock, last week. He thought the days of some of the older tonnage were finished. Empire, Ocean, Liberty and other war-built tonnage had had their day. We had got to get the latest types of ship if we were to compete with the new fleets of countries who had recently shown a desire to own their own merchant fleets.

There had been one or two mildly encouraging signs in shipping recently. The fall in laid-up tonnage from around nine million to five and a half million tons had been contributed to by scrapping and the fact that shipowners were building fewer ships at present. The shipbuilder, he said, was having a fairly hard time, but he had had quite a good time for a decade after the war, and in those good times it was impossible to get fixed prices and fixed dates for delivery. The situation had changed very much today. Orders were scarce and that called for highly competitive prices. This change was essential, he said, if we were to survive in a very competitive world. A great many people were becoming shipowners and doing everything they could to seize cargo from the British fleet.

Modernisation at Belfast

NEWS of a major modernisation programme was recently given by Sir Frederick Rebbeck, chairman and managing director of Harland and Wolff, Limited. Work has commenced on the reorganisation and improvement of certain of the larger slipways which would increase the capacity of the cranes and would extend existing welding facilities with a material improvement in capacity and efficiency.

For Pacific Tourists

IN North America P. and O. and Orient Lines (who have been trading until the recent merger of the P. and O. Company and the Orient Line under the name of Orient and Pacific Lines) have issued this month from their office in San Francisco the first issue of a new quarterly publication describing their activities and services in the Pacific under the name of *POSH* (a reference to the early term "port out, starboard home"). It features the various tourist attractions available to Americans and Canadians in the vast arena of tourist opportunities now open, as a result of the many new passenger liner services being offered connecting San Francisco, Los Angeles, and Vancouver with such places as Honolulu, Suva, Auckland, Sydney, Manila, Hong Kong, Kobe and Yokohama.

Japan—Australian Service

ROYAL INTEROCEAN LINES, Netherlands-owned, has announced that it would inaugurate a fast passenger and freight service between Japan and east Australia. Two modern air-conditioned passenger liners, the *Tjiwangi* and the *Tjiluwah*, will be used on the service. The route will start from Melbourne and call at Sydney, Brisbane, Yokkaichi, and Yokohama and Kobe, returning via Hong Kong to Sydney and Melbourne. The first sailing is scheduled from Melbourne at the end of July.

Port Authority for Colombo?

THE general manager of the Colombo Port Cargo Corporation, Mr. C. Mylvaganam, has recommended to the government that the port of Colombo should be administered by a port authority. This is the basic proposal made by Mr. Mylvaganam in a report he has prepared following his visit to Singapore recently, suggesting effective measures to combat the increasing incidence of pilferage, theft and petty smuggling in the port. His concept of a port authority for Colombo is based on the framework of the Port of London Authority and the Singapore Harbour Board. It envisages the merging into one single unit of the three main port services—the Customs, the Port Commission and the Port Cargo Corporation under the direct control of one authority.

FINANCIAL RESULTS

NOTES on the trading results, dividends and financial provisions of companies associated with the transport industry are contained in this feature, together with details of share issues, acquisitions and company formations or reorganisations.

Ribble Motor Services

Ribble Motor Services, Limited, is paying a final dividend of 6 per cent, making 10 per cent, for the year ended March 31, 1960 (same). Group net profit £362,862 (£286,265), after tax £294,706 (£273,582). To general reserve £125,000 (£53,710). Forward £250,989 (£224,803).

Henry Simon (Holdings)

The scheme for the merger of Henry Simon (Holdings), Limited, and Simon-Carves, Limited, has now been finalised. Henry Simon and Simon-Carves are the parents of a number of engineering companies known as the Simon Engineering Group and Henry Simon has an interest in the Simon-Carves equity. The terms of the merger provides for the creation of a new holding company.

Cape Asbestos

Net profit of the Cape Asbestos group for 1959 after taxation was a record £944,068 (£754,266). Dividend is 20 per cent. Sales of Rocksil rock wool, Asbestolux asbestos insulation board, Uxbridge flint bricks and Marinite asbestos sheet were each records. The Weaver Manufacturing and Engineering Co., Limited, a Cape Asbestos subsidiary manufacturing garage equipment and steam cleaners, also had a record year.

FORTHCOMING EVENTS

June 4-5.—H.C.V.C. Fourth rally. At Beaulieu.
June 4-6.—L.R.T.I. Annual convention. At Bruhl.
June 7-11.—L.R.T.I. Visits to Ruhr tramways systems.
June 12.—S.C.T.S. Coach and Rail Tour of East Kent.
O.S. Visit to West Hartlepool Corporation Transport.
O.S. Tour of West Riding.
June 15.—Inst.C.E. Conversazione. Great Geo ge Street, S.W.1. 7.30 p.m.
June 23.—I.E.E. Conversazione. Royal Festival Hall, S.E.1.
June 25-July 8.—Machine Tool Exhibition 1960. Olympia.
September 5-11.—Society of British Aircraft Constructors. Farnborough Show. (Public days, September 9, 10, 11).
September 12-16.—Municipal Passenger Transport Association. Confe ence at Douglas, I.o.M.
September 23—October 1.—Commercial Motor Show. Ear's Court, S.W.14.

KEY TO CODE

A.D.A.—Aluminium Development Association; A.F.—Aviation Forum; B.I.R.E.—British Institution of Radio Engineers; D.E.U.A.—Diesel Engineers and Users Association; E.R.S.—Electric Railway Society; H.C.V.C.—Historic Commercial Vehicle Club; Inst.C.E.—Institution of Civil Engineers; I.E.E.—Institution of Electrical Engineers; I.N.A.—Institution of Naval Architects; I.R.S.E.—Institution of Railway Signal Engineers; I.R.T.E.—Institute of Road Transport Engineers; I.T.A.—Industrial Transport Association; I.Loco.E.—Institution of Locomotive Engineers; I.Mar.E.—Institute of Marine Engineers; I.Mech.E.—Institution of Mechanical Engineers; I.Nav.—Institute of Navigation; Inst.H.E.—Institution of Highway Engineers; Inst.P.—Institute of Petroleum; Inst.T.—Institute of Transport; Inst.Traf.A.—Institute of Traffic Administration. L.M.R.L.D.S.—London Midland Region Lecture and Debating Society; L.R.T.L.—Light Railway Transport League; N.T.M.R.C.—Norbury Transport and Model Railway Club; O.S.—Omnibus Society; P.R.D.G.—Peterborough Railway Discussion Group; P.V.O.A.—Passenger Vehicle Operators Association; P.W.I.—Permanent Way Institution; R.Ae.S.—Royal Aeronautical Society; R.C.H.S.—Railway and Canal Historical Society; R.C.T.S.—Railway Correspondence and Travel Society; R.H.A.—Road Haulage Association; R.S.A.—Royal Society of Arts; Rly.C.—Railway Club; Rly.E.C.—Railway Enthusiasts Club; Rly.S.A.—Railway Students Association; S.C.T.S.—Southern Counties Touring Society; S.E.—Society of Engineers; S.L.S.—Stephenson Locomotive Society; S.R.L.D.S.—Southern Region Lecture and Debating Society; S. Wales and Mon. R.D.L.D.S.—South Wales and Mon. Railway and Docks Lecture and Debating Society; T.R.T.A.—Traders Road Transport Association; W.R.L.L.D.S.—Western Region London Lecture and Debating Society; W.W.R.T.S.—West Warwickshire Railway and Travel Society.

SULZER ANNIVERSARY

(*Continued from page* 13)

coupled with spray cooling of the pistons, and the way was open for big increases in total and specific power, leading eventually to the cross scavenging and exhaust-gas turbocharging of more modern times and outputs of well over 10,000 h.p. from single units.

The name of Sulzer is also connected with pioneering work in the application of the diesel engine to railway traction and produced the 1,000-h.p. power unit for the world's first diesel locomotive in 1912. In 1914 Sulzer-powered diesel-electric railcars were commissioned in Germany, followed in the early 1920s by Sulzer railcars for Switzerland, while two 4,400-h.p. diesel-electric locomotives built for the French and Rumanian railways in 1938 were at the time the most powerful in the world. Deservedly, an impressive number of Sulzer diesel engines have been or are being specified by railway operators in many parts of the world, including 603 units for British Railways and over 300 for the French S.N.C.F. in recent years.

Sulzer interests do not lie exclusively in transport and stationary power plant (to which gas turbines were added in 1947) but extend to many branches of the engineering industry. Current products include refrigeration and quick-freezing plant, heating and air-conditioning installations, hydraulic machinery and plants, gas-handling machinery, weaving machines and process-engineering plants.

SOCIAL AND PERSONAL

The late Mr. J. N. Maskelyne

WE deeply regret to record the death of Mr. James Nevil Maskelyne, at the age of 68. Known to railway enthusiasts all over the world for his encyclopaedic knowledge of steam locomotive history and particularly of minor features and precise details of livery of past locomotives, he was an expert maker of models and in great demand as a judge in competitions. He was editor of *Model Railway News* and technical editor of *Model Engineer* from 1934 to 1957. He was a member of the famous family of illusionists and his earliest essays in model building were with miniatures of stage sets for the devising of new acts in conjunction with his grandfather, John Nevil Maskelyne. J. N. Maskelyne's delightful drawings of locomotives, recently exemplified in his *Locomotives I Have Known*, will always remain a memorial to his genius.

* * *

The Railway Benevolent Institution informs us that its annual flag day has been postponed until July 15.

* * *

Mr. Lincoln Steel has been elected to the board of Triplex Holdings, Limited, of which he was at the same time appointed deputy chairman.

* * *

Mr. A. M. Champion, M.B.E., has been appointed manager of the vehicle engine sales branch of F. Perkins, Limited.

* * *

Mr. Lionel G. Stockwell, managing director of Hernu, Peron and Stockwell, Limited, the shipping and forwarding agent, retired on May 31, after completing 47 years with the firm. Mr. Stockwell joined his father in the family business of Stockwell and Co., Limited, in 1913 and his retirement ends the family connection of three generations. He is recognised as an authority on shipping and forwarding matters. He is a fellow of the Institute of Shipping and Forward-Agents, serving on the national council of the Institute from 1952 to 1954. Hernu, Peron and Stockwell has been part of the Thos. Cook group since January 1, 1948, having originally been acquired by Carter Paterson in January, 1946.

Mr. L. G. Stockwell

* * *

Mr. S. Ferry, M.B.E., traffic manager, Trent Motor Traction Co., Limited, will be retiring from the service on September 30. Mr. Ferry joined Trent Motor Traction in 1920 as assistant to the general manager.

* * *

Mr. R. W. Thornton, B.Sc., Grad.I.Mech.E., previously sales engineer of the industrial units division, has now been appointed sales engineer of Leyland Motors, Limited. He joined the company in 1946 as a trade apprentice.

* * *

Air Vice Marshal Sir Laurence Sinclair, G.C., K.C.B., C.B.E., D.S.O., has been appointed Controller of Ground Services in the Ministry of Aviation, in succession to Mr. E. A. Armstrong, C.B., C.B.E., who is retiring from the public service.

* * *

Mr. Walter F. French, managing director of United Service Transport Co., Limited, who was chairman of P.S.V. Operators, Limited, the London independent coach travel organisation, has relinquished that post in favour of Mr. F. J. Speight, of George Ewer and Co., Limited. Mr. French had been chairman since the inception of P.S.V. Operators in 1932.

British Aircraft Group

THE following are the new chairmen and boards of the underlying companies of the British Aircraft Corporation, Limited, the formation of which was referred to in our last issue:

Vickers-Armstrongs, Limited: Mr. A. O. Bluth, Sir George Edwards and Mr. T. Gammon will resign from the board. Mr. Bluth and Sir George, who are directors of Vickers, will retain their seats on the board of that company.

Vickers-Armstrongs (South Marston), Limited: The board will be: Mr. W. D. Opher, chairman; Mr. S. P. Woodley, general manager; and Mr. J. H. Robbie. [The South Marston works of Vickers-Armstrongs (Aircraft) have been excluded from the merger and this new company has been formed to operate them.]

Vickers (Aviation), Limited: The board will be: Mr. R. P. H. Yapp, chairman: Mr. N. H. Jackson, Mr. J. H. Robbie and Sir Leslie Rowan.

Vickers-Armstrongs (Aircraft), Limited: The board will be: Major-General Sir Charles Dunphie, chairman; Sir George Edwards, managing director; Mr. T. Gammon, deputy managing director; Mr. A. W. E. Houghton, general manager; Mr. J. E. Armitage, commercial director; Mr. H. H. Gardiner, technical director; Mr. A. H. C. Greenwood, director (sales and service); Mr. G. F. H. Hemsley, chief engineer (aircraft); and Mr. B. Stephenson, director of engineering.

English Electric Aviation, Limited: Lord Nelson of Stafford, Sir Archibald Forbes and Sir John Woods retire from the board. Mr. H. G. Nelson is chairman of the reconstituted board. Sir Conrad Collier retires from the position of chief executive, guided weapons division and also from the board. Viscount Caldecote, formerly deputy managing director, becomes managing director, in which capacity he will also act as chief executive, guided weapons division.

The following are appointed new directors of English Electric Aviation: Mr. L. H. Bedford, director of engineering, guided weapons division; Mr. R. F. Creasey, director of engineering aircraft division; Air Commodore S. Graham, commercial director, aircraft division; Mr. G. R. Jefferson, chief engineer, guided weapons division; and Mr. A. T. Slator, manager, guided weapons division. Mr. F. W. Page is chief executive, aircraft division, in addition to being on the board, and Wing Commander R. P. Beamont, manager flight operations and chief test pilot, is appointed a special director.

* * *

Mr. G. E. Curtis, district goods manager, Broad Street, London Midland Region, B.R., has retired.

* * *

Mr. E. L. Bass, chief engineer of the Shell Aviation Division in London, is retiring after 43 years' service with the Royal Dutch—Shell Group of Companies. A mechanical engineer with an exceptionally wide knowledge of internal combustion engines and aeronautical engineering, Mr. Bass achieved an international reputation in aviation during his service with the group.

Sir James Farquharson, general manager of East African Railways and Harbours, receives the K.B.E., awarded him in the New Year Honours List, from the Governor of Kenya, Sir Patrick Renison

Lord Merrivale of Walkhampton has been re-elected president of the Institute of Traffic Administration and the new chairman of the national council is Mr. W. Lindley (Frames Tours, Limited). The vice-chairmen are Mr. K. J. P. Bowyer (Bowyer Plant Hire and Transport, Limited) and Mr. W. C. Dale (Reed Transport, Limited).

* * *

At the annual general meeting of the Industrial Transport Association on May 28, the following were elected: President, Sir W. W. Wakefield; vice-presidents, Messrs. A. L. Bagley, J. J. Brown, W. G. Gee, A. A. Hart, L. J. Hopkins, F. H. Wells and W. G. Widnall; chairman, Mr. C. A. Elliott; vice-chairmen, Messrs. G. L. Eades and C. N. J. Graddon.

At the presentation to Sir Reginald Wilson by members of the Eastern Area Board to mark the end of his five-year term as chairman. He has since become chairman of the London Midland Area Board

Left to right (standing): Messrs. H. C. Johnson (general manager, Eastern Region), Alastair MacLeod (member, Eastern Area Board), G. A. V. Hayes (secretary, Eastern Area Board), J. B. Peile (member, Eastern Area Board), Norman Hamilton (adviser on public relations) and A. K. Terris (chief civil engineer, Eastern Region). Seated: Sir Henry Willink (member, Eastern Area Board), Sir Reginald Wilson, Major-General G. N. Russell (chairman, Eastern Area Board), Messrs. Jack Tanner (member, Eastern Area Board) and A. F. Pegler (member, Eastern Area Board)

Mr. D. Currie has been appointed production engineering manager at Chrysler Motors, Limited, Kew. He will be responsible for co-ordinating, developing and administrating the functions of the planning and maintenance departments of both Chrysler and Dodge Brothers (Britain), Limited.

* * *

The results of the Institute of British Carriage and Automobile Manufacturers 1960 drawing and handicraft competition have been announced. First prize (£90, medal and certificate, and visit to a Continental motor show) goes to Mr. J. A. Lowrie, Stapleford, Nottingham (Nottingham City Transport), in the competition for a rear-engined single- or double-deck bus or single-deck coach. His design was for a double-deck airport coach. The runner-up is Mr. A. Chamberlain, of Wembley Park, for a single-deck coach, and the third prize goes to Mr. W. R. Almond, Birmingham (M.C.C.W., Elmdon), for a double-deck bus. The first prize for a three-man driver's cab for trans-continental operation, with sleeping berth, for a tractor chassis, was not awarded; the second prize (£40 and certificate) goes to Mr. S. R. Jackson, Southall (Mickleover Transport, Limited).

The engineering group of the General Electric Co., Limited, announces the appointment of Mr. E. W. Molesworth as chief engineer for the London, Southern and Eastern areas.

* * *

The Liverpool Cart and Motor Owners' Association is the only unit in the R.H.A. which retains its original identity and its own funds. This point was made by Mr. R. S. Harrison, immediate past-president of the Association, when he was presented with a wrist watch from the members on May 24 in recognition of his services during his period of office.

* * *

A reception was given on Friday of last week at the head office of the Port of London Authority for the members of the International Conference on Safety of Life at Sea who are now meeting in London. The delegates were received by Viscount Simon, Viscountess Simon, and by Lord Cottesloe, deputy chairman. Also present were members of the Authority and Sir Leslie Ford, general manager, Mr. G. A. Wilson, chief engineer, together with a wide cross-section of representatives of administrative, civic and shipping circles.

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REPORTING RAILWAY PROGRESS 4

STATIONS

THE NEW DEPARTURE

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PUTTING ON THE STYLE Banbury station shows the new look: clean lines, imaginative landscaping, simple access. An architectural gain to the town.

CUTTING OUT THE QUEUES 700 automatic on-the-spot ticket-printers are already in use. Ticket - issues quickened, booking office queues shortened, tempers sweetened.

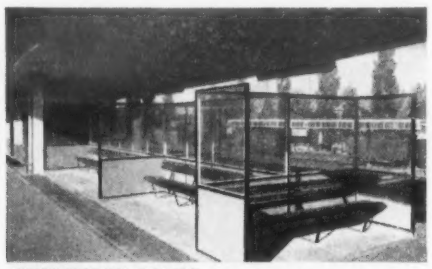
QUICK CAFETERIA Self-service, Cardiff: as elsewhere, more varied food, gayer surroundings, brighter lights. Rising standards of comfort and service.

WHILE YOU WAIT Where waiting neither freezes toes nor shrivels the spirit: pictures that please, chairs that ease, in the modern waiting-rooms.

STAIRWAY TO THE TOP The light clean design of the modern station makes travel a pleasure. Banbury's is one of the first Bright Young Buildings – spacious halls, lively colours, civilized amenities: a standard that will be general.

SYMBOL ON THE SKYLINE Free-sweeping symmetry of Manchester's Oxford Road station sums up the new thrust, the eye-on-the-future.

SHOPPING IN A SECOND Plate-glass expanses, wide-open display make the odd purchase an even chance for those catching a train.



SHELTERED SEATS Screened from the stray edged wind, and a window on to approaching trains – the freshly-designed platform seats.

FAMILY ON THE MOVE Wheel-it-yourself luggage trolleys – help yourself when the porters are booked or the bags are bafflingly numerous.

SNACKS ON FOUR WHEELS Compact, hygienic mobile counters at the big termini: providing day-and-night hot drinks and snacks at the fluctuating busy points.

DINING TIME First-class cuisine, wines, service; good furnishings, fabric and decor. St. Pancras's Shires Restaurant sets the pattern. Many of these new-style restaurants are becoming popular meeting places for lunch and dinner.

STATION ON THE WAY A model of tomorrow's model station. Leeds City will have overhead barrowways freeing platforms. The future on the line.

NEXT: DESTINATION KUWAIT

Photographed by John Chillingworth

Printed by Odhams (Watford) Limited, St. Albans Road, Watford, Herts, for and published by Modern Transport Publishing Co., Limited, Russell Court, 3-16 Woburn Place, London, W.C.1.